Product Catalog

Your Solution Provider for...

Connectivity

Power

Control
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connectivity</td>
<td>1</td>
</tr>
<tr>
<td>Data Bus Systems</td>
<td>2</td>
</tr>
<tr>
<td>Boards - 1553</td>
<td>3</td>
</tr>
<tr>
<td>Boards - 429</td>
<td>4</td>
</tr>
<tr>
<td>Components - 429</td>
<td>5</td>
</tr>
<tr>
<td>Components - 1553</td>
<td>5</td>
</tr>
<tr>
<td>Transformers</td>
<td>6</td>
</tr>
<tr>
<td>Optional Software</td>
<td>7</td>
</tr>
<tr>
<td>Fibre Channel &amp; High Speed Solutions</td>
<td>26</td>
</tr>
<tr>
<td>Boards</td>
<td>26</td>
</tr>
<tr>
<td>Transformers</td>
<td>26</td>
</tr>
<tr>
<td>Radiation Tolerant Microelectronics</td>
<td>29</td>
</tr>
<tr>
<td>Computers</td>
<td>29</td>
</tr>
<tr>
<td>Analog-to-Digital Converters</td>
<td>29</td>
</tr>
<tr>
<td>Digital-to-Analog Converters</td>
<td>29</td>
</tr>
<tr>
<td>Low Voltage +3.3V EEPROM</td>
<td>29</td>
</tr>
<tr>
<td>5.0V EEPROM</td>
<td>29</td>
</tr>
<tr>
<td>Low Voltage 3.3V SRAM</td>
<td>30</td>
</tr>
<tr>
<td>SDRAM</td>
<td>30</td>
</tr>
<tr>
<td>PROM</td>
<td>30</td>
</tr>
<tr>
<td>Flash</td>
<td>30</td>
</tr>
<tr>
<td>Nuclear Event Detectors</td>
<td>30</td>
</tr>
<tr>
<td>Processor &amp; Peripherals</td>
<td>30</td>
</tr>
<tr>
<td>Multiplexers</td>
<td>30</td>
</tr>
<tr>
<td>Amplifiers &amp; Comparators</td>
<td>30</td>
</tr>
<tr>
<td>Logic</td>
<td>31</td>
</tr>
<tr>
<td>Optocoupler</td>
<td>32</td>
</tr>
<tr>
<td>Power</td>
<td>38</td>
</tr>
<tr>
<td>Solid-State Power Controllers</td>
<td>39</td>
</tr>
<tr>
<td>Solid-State Power Controllers</td>
<td>40</td>
</tr>
<tr>
<td>Transformers</td>
<td>40</td>
</tr>
<tr>
<td>Power Supplies</td>
<td>47</td>
</tr>
<tr>
<td>Signal Processing</td>
<td>49</td>
</tr>
<tr>
<td>Control</td>
<td>51</td>
</tr>
<tr>
<td>Motor Drives and Controllers</td>
<td>52</td>
</tr>
<tr>
<td>Motor Drives / Controllers</td>
<td>52</td>
</tr>
<tr>
<td>Motor Controllers</td>
<td>52</td>
</tr>
<tr>
<td>Motor Drives</td>
<td>52</td>
</tr>
<tr>
<td>Space Grade Hybrids</td>
<td>52</td>
</tr>
<tr>
<td>Motion Feedback — Synchro/Resolver</td>
<td>57</td>
</tr>
<tr>
<td>Boards</td>
<td>58</td>
</tr>
<tr>
<td>USB</td>
<td>58</td>
</tr>
<tr>
<td>Components — Resolver, Synchro, LVDT, RVDT, Inductosyn, MR, and Hall Converters</td>
<td>58</td>
</tr>
<tr>
<td>Components — Digital-to-Synchro and Resolver Converters</td>
<td>59</td>
</tr>
<tr>
<td>Components and Boards — Synchro and Resolver Special Function</td>
<td>59</td>
</tr>
<tr>
<td>Transformers</td>
<td>59</td>
</tr>
<tr>
<td>Custom Hybrids and ASICs</td>
<td>68</td>
</tr>
<tr>
<td>Custom Hybrids</td>
<td>69</td>
</tr>
<tr>
<td>Custom ASICs</td>
<td>70</td>
</tr>
<tr>
<td>Space Level Capabilities</td>
<td>71</td>
</tr>
<tr>
<td>Quality</td>
<td>72</td>
</tr>
</tbody>
</table>

©2011, 2013, 2015, 2017 Data Device Corporation. All trademarks are the property of their respective owners.

www.ddc-web.com
DDC is the market leader in data bus solutions for MIL-STD-1553/1760, ARINC 429/717, Fibre Channel, Ethernet, CANbus, Serial I/O, and other protocols.

- Maximize system performance with the most advanced data bus components
- Utilize the most compact cards to optimize SWaP constrained systems
- Access and test avionics systems from anywhere on an Ethernet network computer
- Minimize development time with advanced software tools and automated code generation

---

**More Efficiency**

- Optimize SWaP
  - Multi-protocol and high channel cards
  - The industry's smallest components, like the Total-AceXtreme®
- Save Time
  - BusTrACER®... save time with one-click code generation
  - Common API... save time using the same software for test and embedded
  - Ethernet Attached Tester... access data from MIL-STD-1553, ARINC 429 and other protocols via Ethernet
  - Value-added integrated solutions from custom hybrids and ASICs to fully optimized LRUs.

---

**More Reliability**

- Boards based on ASICs instead of FPGAs... higher MTBF
- ASIC's with more than 200 million hours of in-service history enables DO-254 Design Assurance Level (DAL) A
- Rugged boards, components and box solutions engineered for harsh environments, including single board computers for space flight applications
- RAD-PAK® technology provides high radiation protection for space qualified products
- Triple redundant single board computers for space, providing 99% operational reliability

---

**More Performance**

- Advanced MIL-STD-1553 solutions provide fast access time, low CPU utilization and low power
- Smart protocol converter enables system upgrades by bridging legacy and emerging data bus and network protocols
- Processor-based modules that convert messages in real-time between Ethernet, MIL-STD-1553, and ARINC 429, as well as function as a standalone computer
- SWAP-optimized, scalable compact computer solutions with best-in-class performance from Intel's® embedded computer architecture
As the leading global supplier of data bus components, boards, modules, computers, and software solutions for the military and commercial aerospace markets, DDC’s data bus networking solutions encompass the full range of data interface protocols to support the real-time processing demands of field-critical data networking between systems and subsystems on the platform. These products, along with our traditional MIL-STD-1553 solutions, represent a wide and flexible array of performance and cost solutions, enabling DDC to support multi-generational programs.

Whether employed in increased bandwidth, high-speed serial communications, or traditional avionics and ground support applications, DDC’s data bus solutions fulfill the expanse of military, civil aerospace, and space requirements including reliability, determinism, low CPU utilization, real-time performance, and ruggedness within harsh environments. Our use of in-house intellectual property ensures superior multi-generational support, independent of the life cycles of commercial devices. Moreover, we maintain software compatibility between product generations to protect our customers’ investments in software development, system testing, and end-product qualification.

DDC, the world leader in MIL-STD-1553 technology, provides the broadest selection of quality MIL-STD-1553 rugged embedded and lab grade computers, boards and components to meet your data conversion and data interface needs. Our 1553 data bus board solutions are integral elements of military, aerospace, and industrial applications. Our extensive line of military and space grade components provide MIL-STD-1553 interface solutions for microprocessors, PCI buses, and simple systems. Our 1553 data bus solutions are designed into almost every aircraft, helicopter, unmanned vehicle, missile programs, and space system that utilizes MIL-STD-1553.

DDC has a wide assortment of quality ARINC 429 embedded and lab grade boards, LRUs, and components, to serve your data conversion and data interface needs. DDC’s ARINC 429 components ensure the accurate and reliable transfer of flight-critical data. Our 429 interfaces support data bus development, validation, and the transfer of flight-critical data aboard commercial aerospace platforms.

DDC offers convenient solutions to convert MIL-STD-1553, ARINC 429, and Ethernet protocol in any direction, in real-time, without a host computer, enabling seamless and cost saving multi-protocol connectivity for test and embedded applications.

DDC offers a wide variety of solutions based on extensions of MIL-STD-1553 for emerging aerospace applications. Turbo 1553 increases the data rate of 1553 from 1 Mbps to 5 Mbps while maintaining the architectural features of MIL-STD-1553. Hyper 1553 provides high speed communication (50 to 100+ Mbps) over MIL-STD-1553 buses while operating concurrently with legacy 1 Mbps 1553 (similar to ADSL for telephone networks).

DDC supplies MIL-STD-1553 and ARINC 429 board level products in a variety of form factors including USB, PCI-Express, PCMCIA, ExpressCard, AMC, PMC, XMC, PCI-104, PC/104-Plus, PC/104, PCI, cPCI, VME, and ISA bus boards. Our laboratory simulation and in-flight products include multi-function and single-function for system integration and production test environments. Our extensive line of military and space grade components provide MIL-STD-1553 interface solutions for microprocessors and simple systems. Our software is supplied in the form of menus, libraries, and drivers. We also offer additional software to expand our data networking range of options.
### Systems

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Max # of Channels</th>
<th>Mode of Operation</th>
<th>Memory</th>
<th>I/O</th>
<th>Environment</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1553</td>
<td>429</td>
<td>717</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Avionics Interface Computer (AIC)

**BU-67125W00R**
- 1x 1553 Mini-PCIe 2 3 4 2 3 2 1 1 1 1 1
- 1x 429 Mini-PCIe 6 4 2 2 3 2 1 1 1 1 1
- 1x 1553 & 1x 429 Mini-PCIe 2 6 4 2 2 3 2 1 1 1 1

**BU-67124W00R**
- 1x 1553 XMC 8 2 2 2 2 2 1 1 1
- 1x Multi-I/O XMC 4 20 2 2 2 8 8 10 10 1
- 2x 1553 Mini-PCIe 4 2 1 1
- 2x 429 Mini-PCIe 12 8 4 4 2 1 1

**BU-67121WX0X**
- 2x 1553 PMC 16 8 2 1 1 16 16 16 16
- 2x 429 PMC 72 72 4 4 2 1 1 32 32
- 2x 1553 Mini-PCIe 4 2 1 1
- 2x 429 Mini-PCIe 12 8 4 4 2 1 1

#### AceXtreme® Bridge Device

**BU-67115WX**
- 2 6 6 2 12

**BU-67116WX**
- 2 6 6 2 12

**BU-67119WX**
- 2 6 6 2 12

#### Secure 1U Dual Server (per side)

**BU-67127WX**
- 1 1

**BU-67128WX**
- 1 1

*Visit www.ddc-web.com/db for complete product information.*

---

**History of Innovation**

---

**Increased Functionality In a Smaller Package**

- 1983
- 1993
- 1995
- 1997
- 1999
- 2001
- 2003
- 2005
- 2007
- 2009
- 2011
- 2013
- 2015

---

**Backbone**

- **Transceivers**
- **Protocol**
- **Transformers**
- **Rad Tolerant**

www.ddc-web.com
<table>
<thead>
<tr>
<th>Product Number</th>
<th>Max # of Channels</th>
<th>Optional Software</th>
<th>I/O</th>
<th>Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1553  429  717</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI-Express</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67X06K</td>
<td>4 4</td>
<td>8 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mini-PCIe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67114Fx</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ExpressCard</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67101G</td>
<td>2 2</td>
<td></td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>XMC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67112Y/Z</td>
<td>8 20 20 2 2</td>
<td>8 8 10 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67118Z</td>
<td>4 20 20 2 2</td>
<td>8 8 10 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67110F/M</td>
<td>8 4</td>
<td>8 16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67118M</td>
<td>4 20 20 2 2</td>
<td>2 8 8 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-65596/7F/M</td>
<td>4</td>
<td>16 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-65580Mx</td>
<td>1</td>
<td>2 2 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-65578F/M</td>
<td>8 8</td>
<td>8 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67X02/3U</td>
<td>2 1 4 2</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67211UX</td>
<td>2 2 8 8 2 2</td>
<td>2 4 4 2 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-6713Ux</td>
<td>2 4 2</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67107i</td>
<td>4 16 4</td>
<td>2 2 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67X10i</td>
<td>4 8 8</td>
<td>8 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67301i</td>
<td>1</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI/104-Plus, PCI-104</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-67104/5C</td>
<td>4</td>
<td>5</td>
<td>9 8</td>
<td></td>
</tr>
<tr>
<td>BU-65577/8C</td>
<td>4</td>
<td>5</td>
<td>9 8</td>
<td></td>
</tr>
<tr>
<td>AMC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-65590A</td>
<td>4 8 4</td>
<td>2 2 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCMCIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-65553</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC/104</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU-65567/8</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Boards - ARINC 429

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Max # of Channels</th>
<th>Optional Software</th>
<th>I/O</th>
<th>Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rx</td>
<td>Tx</td>
<td>Rx</td>
<td>Tx</td>
</tr>
<tr>
<td>PCI-Express</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD-40000K</td>
<td>36</td>
<td>36</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Mini-PCIe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD-40001H060</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>XMC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD-40002Z</td>
<td>16</td>
<td>16</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PMC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD-40002M</td>
<td>16</td>
<td>16</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>DD-40100F</td>
<td>36</td>
<td>36</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>PCI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD-40100</td>
<td>36</td>
<td>36</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>cPCI / PXI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD-40100T</td>
<td>36</td>
<td>36</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>PCMCIA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD-42912/24M3</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>


## Components - ARINC 429

<table>
<thead>
<tr>
<th>Product Number</th>
<th>429 Functions</th>
<th>Supply Voltages</th>
<th>Package</th>
<th>Temperature Range (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Channels</td>
<td>FIFO</td>
<td>Label Filter Depth</td>
<td>Integrated Line Driver</td>
</tr>
<tr>
<td>Controllers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD-00429</td>
<td>2</td>
<td>4</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>DD-42900</td>
<td>2</td>
<td>4</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Line Driver</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD-4107X</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Line Receiver</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD-4104X</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quad Line Receiver</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DD-41044</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Visit www.ddc-web.com/db for complete product information.*
## Components - MIL-STD-1553

### 1553 Transceivers

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Function</th>
<th>Supply Voltages</th>
<th>Package</th>
<th>Turns Ratio</th>
<th>Temperature Range (°C)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>BU-63155</td>
<td>Single 5V Transceiver</td>
<td>3.3V, 5V</td>
<td>Flat Pack</td>
<td>1:2.5, 1:2.07</td>
<td>-55 to +125, -65 to +150</td>
<td>19</td>
</tr>
<tr>
<td>BU-67401L</td>
<td>Dual 3.3V Transceiver</td>
<td>3.3V, 5V</td>
<td>Flat Pack</td>
<td>1:2.65, 1:1.79</td>
<td>-55 to +125, -65 to +150</td>
<td>19</td>
</tr>
<tr>
<td>BU-63152</td>
<td>Dual 5V Transceiver</td>
<td>3.3V, 5V</td>
<td>Flat Pack</td>
<td>1:2.5, 1:1.79</td>
<td>-55 to +85, -65 to +150</td>
<td>19</td>
</tr>
<tr>
<td>BU-631X7</td>
<td>Dual 3.3V Transceiver</td>
<td>3.3V, 5V</td>
<td>Flat Pack</td>
<td>1:1.25, 1:1.79</td>
<td>-55 to +125, -65 to +150</td>
<td>19</td>
</tr>
</tbody>
</table>


## Components - MIL-STD-1553

### 1553 Transceivers

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Function</th>
<th>Supply Voltages</th>
<th>Package</th>
<th>Turns Ratio</th>
<th>Temperature Range (°C)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>BU-63155</td>
<td>Single 5V Transceiver</td>
<td>3.3V, 5V</td>
<td>Flat Pack</td>
<td>1:2.5, 1:2.07</td>
<td>-55 to +125, -65 to +150</td>
<td>19</td>
</tr>
<tr>
<td>BU-67401L</td>
<td>Dual 3.3V Transceiver</td>
<td>3.3V, 5V</td>
<td>Flat Pack</td>
<td>1:2.65, 1:1.79</td>
<td>-55 to +125, -65 to +150</td>
<td>19</td>
</tr>
<tr>
<td>BU-63152</td>
<td>Dual 5V Transceiver</td>
<td>3.3V, 5V</td>
<td>Flat Pack</td>
<td>1:2.5, 1:1.79</td>
<td>-55 to +85, -65 to +150</td>
<td>19</td>
</tr>
<tr>
<td>BU-631X7</td>
<td>Dual 3.3V Transceiver</td>
<td>3.3V, 5V</td>
<td>Flat Pack</td>
<td>1:1.25, 1:1.79</td>
<td>-55 to +125, -65 to +150</td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transformers</th>
<th># of Channel Configurations</th>
<th>Coupling Ratio</th>
<th>Transceiver Voltage</th>
<th>Mounting</th>
<th>Series Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>Dual</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-22XX</td>
<td>Single Side by Side</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-23XX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-32XX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DHP-1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLP-60XX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LVB-4230</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLP-22XX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLP-23XX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual</td>
<td>Dual Side by Side</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DLVB-4XXX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSS-1XXX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSS-2XXX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSS-3XXX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TSM-2XXX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TST-90XX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Couplers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BXC-A-X111-1X-XX</td>
<td>Full MIL-STD-1553 Compatibility; Standard Single, Dual, Triple, and Quad-stub Version Box Coupler</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBL-10101XXX-XX</td>
<td>M17/176-00002 Cable; Lengths: 36&quot;, 72&quot;, 120&quot;; Industry Standard Connectors</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Optional Software

<table>
<thead>
<tr>
<th>Feature</th>
<th>Product</th>
<th>Commercial Avionics Utilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dataSIMS</td>
<td>LabVIEW® Support Package</td>
</tr>
<tr>
<td></td>
<td>Avionics Data Bus Test and</td>
<td>Easy and Efficient LabVIEW</td>
</tr>
<tr>
<td></td>
<td>Analysis Software</td>
<td>Development Software</td>
</tr>
<tr>
<td></td>
<td>BU-694X4DS</td>
<td>BU-69093</td>
</tr>
<tr>
<td>and Generation</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
<tr>
<td>ARINC 429 Transmit and</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
<tr>
<td>Receive</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
</tbody>
</table>

Integrate

<table>
<thead>
<tr>
<th>Feature</th>
<th>Product</th>
<th>Commercial Avionics Utilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dataSIMS</td>
<td>LabVIEW® Support Package</td>
</tr>
<tr>
<td></td>
<td>Avionics Data Bus Test and</td>
<td>Easy and Efficient LabVIEW</td>
</tr>
<tr>
<td></td>
<td>Analysis Software</td>
<td>Development Software</td>
</tr>
<tr>
<td></td>
<td>BU-694X4DS</td>
<td>BU-69093</td>
</tr>
<tr>
<td>and Generation</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
<tr>
<td>ARINC 429 Transmit and</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
<tr>
<td>Receive</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
</tbody>
</table>

Analyze

<table>
<thead>
<tr>
<th>Feature</th>
<th>Product</th>
<th>Commercial Avionics Utilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dataSIMS</td>
<td>LabVIEW® Support Package</td>
</tr>
<tr>
<td></td>
<td>Avionics Data Bus Test and</td>
<td>Easy and Efficient LabVIEW</td>
</tr>
<tr>
<td></td>
<td>Analysis Software</td>
<td>Development Software</td>
</tr>
<tr>
<td></td>
<td>BU-694X4DS</td>
<td>BU-69093</td>
</tr>
<tr>
<td>and Generation</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
<tr>
<td>ARINC 429 Transmit and</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
<tr>
<td>Receive</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
</tbody>
</table>

Visualize

<table>
<thead>
<tr>
<th>Feature</th>
<th>Product</th>
<th>Commercial Avionics Utilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dataSIMS</td>
<td>LabVIEW® Support Package</td>
</tr>
<tr>
<td></td>
<td>Avionics Data Bus Test and</td>
<td>Easy and Efficient LabVIEW</td>
</tr>
<tr>
<td></td>
<td>Analysis Software</td>
<td>Development Software</td>
</tr>
<tr>
<td></td>
<td>BU-694X4DS</td>
<td>BU-69093</td>
</tr>
<tr>
<td>and Generation</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
<tr>
<td>ARINC 429 Transmit and</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
<tr>
<td>Receive</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
</tbody>
</table>

Simulate

<table>
<thead>
<tr>
<th>Feature</th>
<th>Product</th>
<th>Commercial Avionics Utilities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dataSIMS</td>
<td>LabVIEW® Support Package</td>
</tr>
<tr>
<td></td>
<td>Avionics Data Bus Test and</td>
<td>Easy and Efficient LabVIEW</td>
</tr>
<tr>
<td></td>
<td>Analysis Software</td>
<td>Development Software</td>
</tr>
<tr>
<td></td>
<td>BU-694X4DS</td>
<td>BU-69093</td>
</tr>
<tr>
<td>and Generation</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
<tr>
<td>ARINC 429 Transmit and</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
<tr>
<td>Receive</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
<tr>
<td>Error Injection</td>
<td>MIL-STD-1553 / ARINC 429</td>
<td>MIL-STD-1553</td>
</tr>
</tbody>
</table>

Page 25 25 25 25 25
**Avionics Interface Computer (AIC)**

### Compact Rugged Version

**Model:** BU-67125W

**Features:**
- Intel Atom Processor Module
- 4GB DDR3 Memory
- 2x 10/100/1000 Ethernet Networking
- Solid-State Drive 64GB to 512GB Storage
- Supported with (2) Mini-PCie Sites and Optional Expansion Slots (contact factory)
- Ruggedized Module Qualified for Rugged Air and Ground Environments

**Applications:**
- Military Aerospace
- Fixed Wing
- Rotary
- Commercial Aerospace
- Fixed Wing
- Rotary
- UAVs
- Ground Vehicles

**Complete Info:** [www.ddc-web.com/BU-67125W](http://www.ddc-web.com/BU-67125W)

### Rugged Version

**Model:** BU-67124W

**Features:**
- Scalable Processing from Intel Core i3, i5, to i7 Dual or Quad Core Processor
- Dual Gigabit Ethernet Interfaces for Network Connectivity and Bridging to 1553 and ARINC 429
- Many Configuration Options Supported with (1) XMC Site and (2) Mini-PCIe Sites
- Ruggedized Module Qualified for Rugged Air and Ground Environments

**Applications:**
- Military Aerospace
- Fixed Wing
- Rotary
- Commercial Aerospace
- Fixed Wing
- Rotary
- UAVs
- Ground Vehicles

**Complete Info:** [www.ddc-web.com/BU-67124W](http://www.ddc-web.com/BU-67124W)

### Lab Version

**Model:** BU-67121W

**Features:**
- Programmable Protocol Converter
  - Intel Atom E3845 Quad Core 1.91GHz Processor
  - 2 GB DDR3 SDRAM
  - 30 GByte SSD
  - 2 PMC and 2 Mini-PCie Expansion Slots
  - 10/100/1000 Base-T Ethernet, USB 2.0, RS-232
  - Linux Operation System
  - Lab Grade, Rack-Mountable Chassis
- Modular Architecture Supports a Variety of I/O Options and Avionic Interfaces

**Applications:**
- Systems Integration Labs
- Simulators
- Production Test Stands
- System Troubleshooting
- Software Development
- Data Recording
- MIL-STD-1553/429 Test and Simulation

**Complete Info:** [www.ddc-web.com/BU-67121W](http://www.ddc-web.com/BU-67121W)

### 3 Modes of Operation

#### Remote Access Mode

Uses Ethernet as a virtual backplane between applications running on a host computer and 1553/429 Interfaces located within the AIC. The AIC utilizes network connectivity to allow physical separation between the computer and the avionics interfaces.

**Available for:**
- Avionics Computer Interface (AIC)
- AceXtreme® Bridge Device (ABD)

#### Protocol Conversion Mode

Features the BU-69094S1 Bridging SDK (software development kit) running on the processor within the AIC. The bridging SDK allows users to easily create embedded software on the AIC that will autonomously forward data between MIL-STD-1553, ARINC 429, and Ethernet Interfaces.

**Available for:**
- Avionics Interface Computer (AIC)
- AceXtreme® Bridge Device (ABD)

#### Standalone Mode

Allows the AIC to operate as a user programmable computer system. Software Development Kits (SDKs) are provided for MIL-STD-1553 and ARINC 429 to facilitate the development of applications requiring communication on these avionics I/Os.

**Available for:**
- Avionics Interface Computer (AIC)

Intel, the Intel logo, the Intel Inside logo and Intel Atom are trademarks of Intel Corporation in the U.S. and/or other countries.
**ACEXTREME® Bridge Device**

**Model:** BU-67119W, BU-67116W, BU-67115W

**Features:**
- Channels:
  - 2 10/100/1000 Ethernet
  - 4 Dual Redundant 1553/1760
  - 6 Prog Rx/Tx ARINC 429
- Up to 12 Discrete I/Os
- 28Vdc Input Power, per MIL-STD-704 and MIL-STD-1275
- Low Power 1GHz Intel Atom Processor
- 8 GBytes SSD
- Bridge Between Ethernet, MIL-STD-1553, and/or ARINC 429
- Remote Access to 429 or 1553 Data via Ethernet

**Applications:**
- Upgrade & Retrofit
- Protocol Conversion
- Mission Computers
- Displays
- Test & Systems Integration
- Situational Awareness
- Simulators
- Data Loading
- Data Monitoring

**Complete Info:** www.ddc-web.com/BU-6711XWX

---

**Secure 1U Data Diode**

**Model:** BU-671127W, BU-67128W

**Features:**
- Platform Features:
  - Dual 2.6GHz Intel i7 Quad Core Haswell Processors
  - USB Key Boot-Up
  - Multiple 10/100/1000 Ethernet Network Ports
  - Security-Enhanced (SE) Linux
  - Hardware Isolated Between Red and Black Sides
- Security Benefits:
  - Best-In-Class Transfer Rates: 700Mbps & Latency as low as 3 Milliseconds
- Certified at PL-5 Against the DCID 6/3 & Listed on UCDSMO Capabilities Report

**Applications:**
- Streaming SR Data Into SOC or Fusion Centers
- Transferring Integrated Vehicle Health Management Data to Ground-Based Logistics Systems
- Sharing Data with Coalition Partners
- Integrating Data Sources Into Off-Board Mission Planning Systems

**Complete Info:**
- www.ddc-web.com/BU-671127W
- www.ddc-web.com/BU-67128W

---

**PCI-Express**

**Model:** BU-67106K, BU-67206K

**Features:**
- Channels:
  - 4 Dual Redundant MIL-STD-1553
  - BC/Multi-RT/Monitor Per Channel*
  - Test and Simulation Toolkit*
  - 8 User-Programmable Digital & Avionics Discrete I/O
  - IRIG-B Time Code Input/Output
  - 48-bit/100ns Time Stamp
  - Time Tag Clock Input/Output
  - Variable Voltage Amplitude
  - Programmable Bus Coupling and Termination*
- Multi-Function 206K Series

**Applications:**
- New Product Development
- Simulation
- Systems Integration
- Bus or Network Analysis
- Production Test
- System Troubleshooting
- Data Recording
- Automatic Test Applications
- Data Monitoring

**Complete Info:** www.ddc-web.com/BU-67206K

---

**Secure 1U Data Diode**

**Model:** DD-40000K

**Features:**
- Channels:
  - 6, 10, 18, or 36 Prog. Tx/Rx ARINC 429
  - Up to 2 Prog. Tx/Rx ARINC 717
  - Up to 16 Avionics Discrete I/O
  - IRIG-B Input/Output
  - Variable Output Voltage on 8 Channels
  - Voltage Monitoring with Scope View on 8 Channels
  - 48-bit/100ns Time Tag
  - Prog. Speed Per Channel (500bps - 200Kbps)

**Applications:**
- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Commercial Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

**Complete Info:** www.ddc-web.com/DD-40000K

---

**Secure 1U Data Diode**

**Model:** BU-671127W

**Features:**
- Streamline Data Diode Between Ethernet, MIL-STD-1553, and/or ARINC 429
- Security Benefits:
  - Best-In-Class Transfer Rates: 700Mbps & Latency as low as 3 Milliseconds
- Certified at PL-5 Against the DCID 6/3 & Listed on UCDSMO Capabilities Report

**Applications:**
- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Commercial Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

**Complete Info:**
- www.ddc-web.com/BU-671127W
- www.ddc-web.com/BU-67128W

---

**Secure 1U Data Diode**

**Model:** BU-671127W

**Features:**
- Secure 1U Data Diode Between Ethernet, MIL-STD-1553, and/or ARINC 429
- Security Benefits:
  - Best-In-Class Transfer Rates: 700Mbps & Latency as low as 3 Milliseconds
- Certified at PL-5 Against the DCID 6/3 & Listed on UCDSMO Capabilities Report

**Applications:**
- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Commercial Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

**Complete Info:**
- www.ddc-web.com/BU-671127W
- www.ddc-web.com/BU-67128W

---

**Secure 1U Data Diode**

**Model:** BU-671127W

**Features:**
- Secure 1U Data Diode Between Ethernet, MIL-STD-1553, and/or ARINC 429
- Security Benefits:
  - Best-In-Class Transfer Rates: 700Mbps & Latency as low as 3 Milliseconds
- Certified at PL-5 Against the DCID 6/3 & Listed on UCDSMO Capabilities Report

**Applications:**
- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Commercial Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

**Complete Info:**
- www.ddc-web.com/BU-671127W
- www.ddc-web.com/BU-67128W

---

**Secure 1U Data Diode**

**Model:** BU-671127W

**Features:**
- Secure 1U Data Diode Between Ethernet, MIL-STD-1553, and/or ARINC 429
- Security Benefits:
  - Best-In-Class Transfer Rates: 700Mbps & Latency as low as 3 Milliseconds
- Certified at PL-5 Against the DCID 6/3 & Listed on UCDSMO Capabilities Report

**Applications:**
- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Commercial Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

**Complete Info:**
- www.ddc-web.com/BU-671127W
- www.ddc-web.com/BU-67128W

---

**Secure 1U Data Diode**

**Model:** BU-671127W

**Features:**
- Secure 1U Data Diode Between Ethernet, MIL-STD-1553, and/or ARINC 429
- Security Benefits:
  - Best-In-Class Transfer Rates: 700Mbps & Latency as low as 3 Milliseconds
- Certified at PL-5 Against the DCID 6/3 & Listed on UCDSMO Capabilities Report

**Applications:**
- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Commercial Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

**Complete Info:**
- www.ddc-web.com/BU-671127W
- www.ddc-web.com/BU-67128W

---

**Secure 1U Data Diode**

**Model:** BU-671127W

**Features:**
- Secure 1U Data Diode Between Ethernet, MIL-STD-1553, and/or ARINC 429
- Security Benefits:
  - Best-In-Class Transfer Rates: 700Mbps & Latency as low as 3 Milliseconds
- Certified at PL-5 Against the DCID 6/3 & Listed on UCDSMO Capabilities Report

**Applications:**
- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Commercial Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

**Complete Info:**
- www.ddc-web.com/BU-671127W
- www.ddc-web.com/BU-67128W
Mini-PCIe

Model: BU-6714Hx

Features:
- Miniature Size PCI-Express Board
- 30mm x 50.95mm x 4.7mm (1.18in. x 2.01in. x 0.185in.)
- Very High Reliability (MTBF)
- Ultra Low Power
- Comprehensive Built-In Self Tests
- 2 Dual Redundant MIL-STD-1553 Channels
- MIL-STD-1553 BC or Multi-RT with Concurrent Bus Monitor

Applications:
- Rugged Small Embedded Systems
- Laptops or Tablets
- Bus Troubleshooting
- Diagnostic Systems
- Hand Held Test Equipment
- Small Displays

Complete Info: www.ddc-web.com/BU-6714Hx

ExpressCard

Model: DD-40001H060

Features:
- PCI Express Mini Card Form Factor
- 30mm x 50.95mm x 4.7mm (1.18in. x 2.01in. x 0.185in.)
- Very High Reliability (MTBF)
- Ultra Low Power
- Comprehensive Built-In Self Tests
- 6 ARINC 429 Channels
  - (2) ARINC 429 Receive Ch.
  - (4) Transmit/Receive (Tx/Rx) ARINC 429 Ch. (2) can be Programmed as Tx/Rx ARINC 717

Applications:
- Rugged Small Embedded Systems
- Laptops or Tablets
- Bus Troubleshooting
- Diagnostic Systems
- Hand Held Test Equipment
- Small Displays

Complete Info: www.ddc-web.com/DD-40001H

Did You Know?

DDC offers new licensing options for MIL-STD-1553 and ARINC 429 Software Solutions

- 3 Flexible Licensing Options to Fit ALL Needs:
  - USB Dongle — for ultimate mobility
  - Node Locked — secure and dongle-free, ideal for dedicated computers and secure labs
  - Network License — offers distributed networking flexibility across multiple labs

- Available for all DDC Data Bus Analysis Software Packages
  - dataSIMS
  - BusTrACER®
  - ARINC Data Bus Analyzer
  - LabVIEW® Support Package

- Security of 12 or 24 Month Maintenance Contracts
(See page 25 for more on Data Bus Software Solutions)
XMC

Model: BU-67118Z

Features:
- Up to 4 Dual-Redundant MIL-STD-1553 Channels
- Supports MIL-STD-1553A/B, MIL-STD-1760, and MacAir
- BC Disable for RT Only
- Rx Inhibit for MT Only
- Up to 20 Programmable Tx/Rx ARINC 429 Channels
- Up to 2 Programmable Tx/Rx ARINC 717 Channels
- Up to 2 CANbus 2.0/ARINC 835 Channels
- Up to 8 Programmable RS-232/422/485 Channels
- Up to 10 Avionics/Digital Discrete I/O

Applications:
- Mission Computers
- Displays and LRUs
- Radar Systems/Situational Awareness
- Commercial Aerospace
- Flyable Avionics/UAVs
- Data Loading
- Data Monitoring
- Ground Vehicles

Complete Info: www.ddc-web.com/BU-67118x

PMC

Model: BU-67110F/M, BU-67210F/M

Features:
- 8 Dual Redundant 1553 Channels
- BC/Multi-RT/Message Per Channel*
- Error Injection*
- Test and Simulation Toolkit*
- Up to 8 Digital Discrete I/O
- Up to 16 Avionics Discrete I/O
- IRIG-B Time Code Input/Output
- 48-bit/100ns Time Stamp

Applications:
- Mission Computers
- Displays
- Digital Data Recorders
- Radar Systems/Situational Awareness
- Systems Integration Labs
- Simulators
- Production Test Labs
- Box-Level Testing and Debugging
- Software Development

Complete Info: www.ddc-web.com/BU-67210FM
## PMC

### Model: DD-40002M

**Features:**
- 16 Rx Only ARINC 429 Channels
- 16 Prog. Tx/Rx ARINC 429 Channels
- Up to 1 Prog. Tx/Rx ARINC 717 Channel
- Up to 8 Avionics Discrete I/Os
- Programmed Speed Per Channel (500bps - 200Kbps)
- DMA Engine for Ultra Low CPU

**Applications:**
- Commercial Aerospace
- In-Flight Entertainment
- Mission Computers
- Digital Data Recorders
- Data Loading
- Data Monitoring

**Complete Info:** [www.ddc-web.com/DD-40002X](http://www.ddc-web.com/DD-40002X)

### Model: DD-40100F

**Features:**
- Channels:
  - 6, 10, 18, or 36 Prog. Tx/Rx ARINC 429
  - Up to 2 Prog. Tx/Rx ARINC 717
- Up to 16 Avionics Discrete I/O
- IRIG-B Input/Output
- Variable Output Voltage on 8 Channels
- Voltage Monitoring with Scope View on 8 Channels
- 48-bit/100 ns Time Tag
- Prog. Speed Per Channel (500bps - 200Kbps)

**Applications:**
- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Commercial Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

**Complete Info:** [www.ddc-web.com/DD-40100F](http://www.ddc-web.com/DD-40100F)

### Model: BU-65596F/M, BU-65597F/M

**Features:**
- 4 Dual Redundant MIL-STD-1553 Channels
- BC, RT, MT, or RT/MT Operation
- Supports MIL-STD-1553A/B and MIL-STD-1760
- Transformer and/or Direct Coupled
- High MTBF - Rugged Environments
- Up to 16 Avionics Discrete I/O
- Front or Rear I/O
- Shock & Vibration per VITA-47 Class V3
- Conforms to ANSI VITA 20-20005 CCPMC Spec

**Applications:**
- Mission Computers
- Displays
- Digital Data Recorders
- Radar Systems/Situational Awareness
- Communication Radios
- Ground Maintenance
- Commercial Aerospace

**Complete Info:** [www.ddc-web.com/BU-65596FM](http://www.ddc-web.com/BU-65596FM)

### Model: BU-67118M

**Features:**
- Up to 4 Dual-Redundant MIL-STD-1553 Channels
- Supports MIL-STD-1553A/B, MIL-STD-1760, and MacAir
- BC Disable for RT Only
- Tx Inhibit for MT Only
- Up to 20 Programmable Tx/Rx ARINC 429 Channels
- Up to 2 Programmable Tx/Rx ARINC 717 Channels
- Up to 2 CANbus 2.0/ARINC 835 Channels
- Up to 8 Programmable RS-232/422/485 Channels
- Up to 10 Avionics/Digital Discrete I/O

**Applications:**
- Mission Computers
- Displays and LRUs
- Digital Data Recorders
- Radar Systems/Situational Awareness
- Commercial Aerospace
- Flyable Avionics/UAVs
- Data Loading
- Data Monitoring
- Ground Vehicles

**Complete Info:** [www.ddc-web.com/BU-67118x](http://www.ddc-web.com/BU-67118x)

---

**Notation:**
- ARINC 429
- ARINC 717
- DISCRETE
- CANBUS
Connectivity

Applications:
• Rugged Small Embedded Systems
• Laptops or Tablets
• Bus Troubleshooting
• Diagnostic Systems
• Hand Held Test Equipment
• Small Displays

Features:
• Miniature Size USB to 1553 Board
• 49.94mm x 63.50mm x 10.46mm (1.96in. x 2.50in. x 0.41in.)
• Very High Reliability (MTBF)
• Ultra Low Power
• Comprehensive Built-In Self Tests
• 2 Dual Redundant MIL-STD-1553 Channels

Complete Info: www.ddc-web.com/BU-67113Ux

Did You Know?
DDC services the world through our headquarters in Bohemia, New York, and our sales offices in England, France, Germany, India, Japan, and Singapore. We have a global network of Field Applications Engineers, Sales Representatives, and manufacturing operations in New York, California, Mexico, and the United Kingdom.
Model: BU-67107i

**Features:**
- Channels:
  - 4 Dual Redundant MIL-STD-1553
  - 16 Receive & 4 Transmit 429
  - 2 RS-232 & 2 RS-422/485
- BC/Multi-RT/Monitor Per Channel
- Test and Simulation Toolkit
- ARINC 429 Only Model Available
- Up to 6 Digital Discrete I/O
- IRIG-B Time Code Input
- 48-bit/100ns Time Stamp

**Applications:**
- Commercial Aerospace
- Systems Integration Labs
- Simulators
- Production Test Labs
- Box-Level Testing and Debugging
- Software Development

Complete Info: www.ddc-web.com/BU-67107iT

---

Model: BU-67110i, BU-67210i

**Features:**
- Channels:
  - 8 Dual Redundant MIL-STD-1553
  - BC/Multi-RT/Monitor Per Channel*
  - Test and Simulation Toolkit*
  - Up to 8 Digital Discrete I/O
  - Up to 8 Avionics Discrete I/O
  - IRIG-B Time Code Input/Output
  - 48-bit/100ns Time Stamp

**Applications:**
- Commercial Aerospace
- Systems Integration Labs
- Simulators
- Production Test Labs
- Box-Level Testing and Debugging
- Software Development

*Multi-Function 210i Series

Complete Info: www.ddc-web.com/BU-67210iT

---

Model: DD-40100i

**Features:**
- Channels:
  - 6, 10, 18, or 36 Prog. Tx/Rx ARINC 429
  - Up to 2 Prog. Tx/Rx ARINC 717
  - Up to 16 Avionics Discrete I/O
  - IRIG-B Input/Output
  - Variable Output Voltage on 8 Channels
  - Voltage Monitoring with Scope View on 8 Channels
  - 48-bit/100ns Time Tag
  - Prog. Speed Per Channel (500bps - 200Kbps)

**Applications:**
- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Commercial Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

Complete Info: www.ddc-web.com/DD-40100i

---

Model: BU-67104/5C, BU-67108/9C

**Features:**
- Channels:
  - 4 Dual Redundant MIL-STD-1553
  - 16 Receive & 8 Transmit 429*
  - Up to 9 Digital Discrete I/O
  - Up to 8 Avionics Discrete I/O
  - IRIG-B Time Code Input/Output
  - 48-bit/100ns Time Stamp
  - +5V only operation
  - 104/5C Series = MIL-STD-1553 only
  - *108/9C Series = Multi-I/O

**Applications:**
- Digital Flight Data Recorders
- Telemetry/Instrumentation Recorders
- Mission Computers
- Small Avionics Displays
- Line Replaceable Units (LRUs)
- Radar Systems/Situational Awareness
- Munitions
- Ground Vehicles
- Avionics Labs

Complete Info: www.ddc-web.com/BU-67104C
www.ddc-web.com/BU-67108C
Model: BU-67107T

Features:
- Channels:
  - 4 Dual Redundant MIL-STD-1553
  - 16 Receive & 4 Transmit 429
  - 2 RS-232 & 2 RS-422/485
  - BC/Multi-RT/Monitor Per Channel
  - Test and Simulation Toolkit
  - Up to 6 Digital Discrete I/O
  - IRIG-B Time Code Input
  - 48-bit/100ns Time Stamp

Applications:
- Commercial Aerospace
- Systems Integration Labs
- Simulators
- Production Test Labs
- Box-Level Testing and Debugging
- Software Development

Complete Info: www.ddc-web.com/BU-67107T

Model: BU-67110T, BU-67210T

Features:
- Channels:
  - 8 Dual Redundant MIL-STD-1553
  - BC/Multi-RT/Monitor Per Channel*
  - Test and Simulation Toolkit*
  - Up to 8 Digital Discrete I/O
  - Up to 8 Avionics Discrete I/O
  - IRIG-B Time Code Input/Output
  - 48-bit/100ns Time Stamp

Applications:
- Commercial Aerospace
- Systems Integration Labs
- Simulators
- Production Test Labs
- Box-Level Testing and Debugging
- Software Development

*Multi-Function 210T Series

Complete Info: www.ddc-web.com/BU-67210T

Model: DD-40100T

Features:
- Channels:
  - 6, 10, 18, or 36 Prog. Tx/Rx ARINC 429
  - Up to 2 Prog. Tx/Rx ARINC 717
  - Up to 16 Avionics Discrete I/O
  - IRIG-B Input/Output
  - Variable Output Voltage on 8 Channels
  - Voltage Monitoring with Scope View on 8 Channels
  - 48-bit/100ns Time Tag
  - Prog. Speed Per Channel (500bps - 200Kbps)

Applications:
- Systems Integration Labs
- Simulators
- Production Test Stands
- Automated Test
- Commercial Aerospace
- New Product Development
- System Troubleshooting
- Portable Testers
- Flight Line Diagnostics
- Flight Testing
- Software Development
- Data Loading
- Data Monitoring
- Bus Debugging & Diagnostics

Complete Info: www.ddc-web.com/DD-40100T

Did You Know?

DDC offers a line of MIL-STD-1553 components that are certifiable to DO-254 Level A.

The DO-254 standard provides guidelines for design assurance of airborne electronic hardware and calls out objectives that must be met by avionics equipment manufacturers to ensure continued airworthiness.

DDC offers DO-254 certifiable MIL-STD-1553 interfaces, such as the ACE family of products which have extensive in-service history, and that are supported by detailed documentation packages, as well as DDC’s proven performance, experience, and reliability.
Total-AceXtreme®

**Model: BU-67301B**

**Features:**
- Fully Integrated 1553 Terminal & Transformer in a BGA Package
- 324 Ball BGA 16mm x 16mm (0.63in. x 0.63in.)
- Protocol, 2Mb RAM, Transceivers & Transformers
- Ultra Low Transceiver Power
- Built-In Self Test & JTAG Support
- 1 Dual Redundant 1553 Channel
- BC or Multi-RT with Bus Monitor
- Temp Range: -40°C to +100°C
- Access Time as low as 12.5ns
- User Selectable & Flexible PCI or Generic Processor Interface

**Applications:**
- Mission Computers
- Data Recorders
- LRU
- Displays
- Ground Vehicles
- Radar Systems/Situational Awareness
- Small Form Factor Boards
- Commercial Aerospace

**Features:**
- Fully Integrated 1553 Terminal & Transformer in a BGA Package
- Small 312 Ball BGA Package
- 27.9mm x 15.2mm (1.1in x 0.6in)
- 0.185in Max Height
- 1 Dual Redundant 1553 Channel
- BC or Multi-RT with Bus Monitor
- Temp Range: -40°C to +100°C
- 4K x 16 RAM up to 64K x 16 RAM
- +3.3V Only Operation
- Generic Processor or PCI Interface

**Complete Info:** www.ddc-web.com/BU-67301

PCI-Express AceXtreme®

**Model: BU-67302B0C0L**

**Features:**
- Protocol, RAM, and Transceivers in a Single Package
- 234 Ball JEDEC Standard Size Fine Pitch Ball Grid Array
- 0.8 mm Ball Pitch
- Ultra Low Transceiver Power
- High Performance PCI-Express X1 Serial Host Interface
- DMA Engine with 264 MB/sec Burst Transfer Rate
- 1 Dual Redundant 1553 Channel
- BC or Multi-RT with Bus Monitor
- 2Mb (64K x 36) RAM
- Temp Range: -40°C to +85°C

**Applications:**
- Mission Computers
- Digital Data Recorders
- Radios/Modems
- Displays and LRU
- Ground Vehicles
- Radar Systems/Situational Awareness
- Small Form Factor Boards
- Commercial Aerospace

**Features:**
- Protocol, RAM, and Dual Low Power Transceivers in a Single Package
- 48 Pin QFN Package
- Ultra Low Transceiver Power
- 50MHz 4-Wire Serial Peripheral Interface (SPI) to the Host Processor
- 1 Dual Redundant 1553 Channel
- RT or RT/MT Operation
- 4K x 16 RAM
- Temp Range: -55°C to +125°C

**Complete Info:** www.ddc-web.com/BU-67302B

Nano-ACE®

**Model: BU-67743LC**

**Features:**
- Protocol, RAM, and Dual Low Power Transceivers in a Single Package
- 48 Pin QFN Package
- Ultra Low Transceiver Power
- 50MHz 4-Wire Serial Peripheral Interface (SPI) to the Host Processor
- 1 Dual Redundant 1553 Channel
- RT or RT/MT Operation
- 4K x 16 RAM
- Temp Range: -55°C to +125°C

**Applications:**
- Displays
- Simple Systems
- Radios/Modems
- Stores Management

**Features:**
- Protocol, RAM, and Dual Low Power Transceivers in a Single Package
- 48 Pin QFN Package
- Ultra Low Transceiver Power
- 50MHz 4-Wire Serial Peripheral Interface (SPI) to the Host Processor
- 1 Dual Redundant 1553 Channel
- RT or RT/MT Operation
- 4K x 16 RAM
- Temp Range: -55°C to +125°C

**Applications:**
- Displays
- Simple Systems
- Radios/Modems
- Stores Management

**Complete Info:** www.ddc-web.com/BU-67743LC

**Complete Info:** www.ddc-web.com/BU-64843T
Micro-ACE® Series

Model: BU-61XX0B3, BU-64X4XBX-E02, BU-65XX3BX-E02

Features:
- 128-Ball Plastic BGA Package (BU-61XX0B3)
- 324-Ball Thermally Enhanced (TE) Package (BU-64X4X/BU-65XX3)
- Supports 1553A/B Notice 2, McAir, STANAG 3838 Protocols
- Compatible with Mini-ACE and ACE Generations
- Temp Range: -40°C to +85°C
- (-40°C to +100°C Micro-ACE-TE)
- Generic Processor or PCI Interface

Applications:
- Mission Computers
- Data Recorders
- LRUs
- Displays
- Ground Vehicles
- Commercial Aerospace

Complete Info: www.ddc-web.com/BU-64X4X
www.ddc-web.com/BU-61XX0

Mini-ACE® Mark3 Series

Model: BU-64XX3, BU-65XX3

Features:
- World’s only 3.3V Only or 5V Only Terminal (No other power supplies required)
- Smallest CQFP 22.35mm x 22.35mm x 3.3mm (0.88in. x 0.88in. x 0.130in.)
- Supports 1553A/B Notice 2, McAir, STANAG 3838 Protocols
- Highly Flexible Host Side Interface
- Generic Processor or PCI Interface
- Temp Range: -55°C to +125°C
- For Simple System RT (BU-64703) visit: www.ddc-web.com/BU-64703

Applications:
- Mission Computers
- Data Recorders
- LRUs
- Displays
- Ground Vehicles
- Commercial Aerospace

Complete Info: www.ddc-web.com/BU-64XX3

Enhanced Mini-ACE® Series

Model: BU-61XXX, BU-62XXX

Features:
- Fully Integrated 1553A/B Notice 2, McAir, STANAG 3838 Protocols
- 1 inch square Ceramic Flat Pack or Gull Wing
- Enhanced Mini-ACE Architecture
- 5V or 3.3V Logic
- Temp Range: -55°C to +150°C
- Generic Processor or PCI Interface
- For Simple System RT (BU-6170X) visit: www.ddc-web.com/BU-6170X

Applications:
- Mission Computers
- Data Recorders
- LRUs
- Displays
- Ground Vehicles
- Commercial Aerospace

Complete Info: www.ddc-web.com/BU-61XX3

SPACE-PHY

Model: BU-67402F30HL, BU-67402F80HL

Features:
- +5V and +3.3V
- Dual-Redundant, Side-by-Side, MIL-STD-1553 Transceiver/Transformer Combo
- Ceramic Flatpack Package
- 25.4mm x 25.4mm x 6.35mm
- (1in. x 1in. x 0.25in.)
- Temp Range: -55°C to +125°C
- Radiation Specifications:
  - Total Dose: 100kRads (+5V) 300kRads (+3.3V)
  - Latchup Immunity Minimum LET Threshold: 85.4 MeV-cm²/mg
  - MIL-PRF-38534

Applications:
- Launch Vehicles
- Military Satellites
- Research Satellites
- International Space Station
- Commercial Telecommunication Satellites

Complete Info: www.ddc-web.com/BU-67402F

See Page 29 for more space-grade products

www.ddc-web.com
Connectivity

**Total-Space ACE**

Model: BU-6752FHL

**Features:**
- Fully Integrated 1553 Terminal & Transformer in a Single Package
  - Ceramic Flatpack Package
  - 41.4mm x 28.7mm x 6.35mm
    (1.63in. x 1.13in. x 0.25in.)
- +3.3V Only Operation
- 1 Dual Redundant 1553 Channel
- BC, RT, MT or RT/MT Functionality
- Temp Range: -55°C to +125°C
- Radiation Specifications:
  - Total Dose: 300kRads
  - Latchup Immune: 75MeV

**Applications:**
- Launch Vehicles
- Military Satellites
- Research Satellites
- International Space Station
- Commercial Telecommunication Satellites

See Page 29 for more space-grade products

Complete Info: www.ddc-web.com/BU-6752F

**SP’ACE II BC/RT/MT**

Model: BU-63825

**Features:**
- +5V Only, +5/-15V, or +5/-12V Power
- Complete Integrated Remote Terminal Including: Dual Low-Power Transceivers/Complete RT Protocol
- Direct Interface to Systems With No Processor
- Radiation-Tolerant to 300kRads
- Space-Qualified
- High Reliability Screening Available
- Temp Range: -55°C to +125°C

**Applications:**
- Launch Vehicles
- Satellites
- International Space Station

Complete Info: www.ddc-web.com/BU-63825

---

**Total-Space RT**

Model: BU-67502

**Features:**
- +3.3V Only Power
- Complete Integrated Remote Terminal Including: Dual Low-Power Transceivers/Complete RT Protocol
- Direct Interface to Systems With No Processor
- Radiation-Tolerant to 300kRads
- Space-Qualified
- High Reliability Screening Available
- Temp Range: -55°C to +125°C

**Applications:**
- Launch Vehicles
- Military Satellites
- Research Satellites
- International Space Station
- Commercial Telecommunication Satellites

See Page 29 for more space-grade products

Complete Info: www.ddc-web.com/BU-67502

**Total-Space ACE**

Model: BU-6752FHL

**Features:**
- Fully Integrated 1553 Terminal & Transformer in a Single Package
  - Ceramic Flatpack Package
  - 41.4mm x 28.7mm x 6.35mm
    (1.63in. x 1.13in. x 0.25in.)
- +3.3V Only Operation
- 1 Dual Redundant 1553 Channel
- BC, RT, MT or RT/MT Functionality
- Temp Range: -55°C to +125°C
- Radiation Specifications:
  - Total Dose: 300kRads
  - Latchup Immune: 75MeV

**Applications:**
- Launch Vehicles
- Military Satellites
- Research Satellites
- International Space Station
- Commercial Telecommunication Satellites

See Page 29 for more space-grade products

Complete Info: www.ddc-web.com/BU-6752F

---

**SP’ACE II**

Model: BU-63705

**Features:**
- +5V Only, +5/-15V, or +5/-12V Power
- Complete Integrated Remote Terminal Including: Dual Low-Power Transceivers/Complete RT Protocol
- Direct Interface to Systems With No Processor
- Radiation-Tolerant to 300kRads
- Space-Qualified
- High Reliability Screening Available
- Temp Range: -55°C to +125°C

**Applications:**
- Launch Vehicles
- Military Satellites
- Research Satellites
- International Space Station
- Commercial Telecommunication Satellites

Complete Info: www.ddc-web.com/BU-63705

---

**Total-Space ACE**

Model: BU-6752FHL

**Features:**
- Fully Integrated 1553 Terminal & Transformer in a Single Package
  - Ceramic Flatpack Package
  - 41.4mm x 28.7mm x 6.35mm
    (1.63in. x 1.13in. x 0.25in.)
- +3.3V Only Operation
- 1 Dual Redundant 1553 Channel
- BC, RT, MT or RT/MT Functionality
- Temp Range: -55°C to +125°C
- Radiation Specifications:
  - Total Dose: 300kRads
  - Latchup Immune: 75MeV

**Applications:**
- Launch Vehicles
- Military Satellites
- Research Satellites
- International Space Station
- Commercial Telecommunication Satellites

See Page 29 for more space-grade products

Complete Info: www.ddc-web.com/BU-6752F

---

**SP’ACE II**

Model: BU-63705

**Features:**
- +5V Only, +5/-15V, or +5/-12V Power
- Complete Integrated Remote Terminal Including: Dual Low-Power Transceivers/Complete RT Protocol
- Direct Interface to Systems With No Processor
- Radiation-Tolerant to 300kRads
- Space-Qualified
- High Reliability Screening Available
- Temp Range: -55°C to +125°C

**Applications:**
- Launch Vehicles
- Military Satellites
- Research Satellites
- International Space Station
- Commercial Telecommunication Satellites

Complete Info: www.ddc-web.com/BU-63705

---

**SP’ACE II**

Model: BU-63825

**Features:**
- +5V Only, +5/-15V, or +5/-12V Power
- Complete Integrated Remote Terminal Including: Dual Low-Power Transceivers/Complete RT Protocol
- Direct Interface to Systems With No Processor
- Radiation-Tolerant to 300kRads
- Space-Qualified
- High Reliability Screening Available
- Temp Range: -55°C to +125°C

**Applications:**
- Launch Vehicles
- Satellites
- International Space Station

Complete Info: www.ddc-web.com/BU-63825

---

**Total-Space ACE**

Model: BU-6752FHL

**Features:**
- Fully Integrated 1553 Terminal & Transformer in a Single Package
  - Ceramic Flatpack Package
  - 41.4mm x 28.7mm x 6.35mm
    (1.63in. x 1.13in. x 0.25in.)
- +3.3V Only Operation
- 1 Dual Redundant 1553 Channel
- BC, RT, MT or RT/MT Functionality
- Temp Range: -55°C to +125°C
- Radiation Specifications:
  - Total Dose: 300kRads
  - Latchup Immune: 75MeV

**Applications:**
- Launch Vehicles
- Military Satellites
- Research Satellites
- International Space Station
- Commercial Telecommunication Satellites

See Page 29 for more space-grade products

Complete Info: www.ddc-web.com/BU-6752F

---

**SP’ACE II**

Model: BU-63705

**Features:**
- +5V Only, +5/-15V, or +5/-12V Power
- Complete Integrated Remote Terminal Including: Dual Low-Power Transceivers/Complete RT Protocol
- Direct Interface to Systems With No Processor
- Radiation-Tolerant to 300kRads
- Space-Qualified
- High Reliability Screening Available
- Temp Range: -55°C to +125°C

**Applications:**
- Launch Vehicles
- Military Satellites
- Research Satellites
- International Space Station
- Commercial Telecommunication Satellites

Complete Info: www.ddc-web.com/BU-63705
## Single/Dual 5V Transceivers

### Model: BU-63155, BU-63152

**Features:**
- Single 5V Transceiver (BU-63155)
  - World’s Smallest +5V 1553 Transceiver
  - Temp Range: -55°C to +125°C
  - 7mm x 7mm x 1mm (0.28in. x 0.28in. x 0.040in.)
  - Requires +5V Power Supply
  - 32-Pad LPCC Package
  - Low Power Consumption

- Dual 5V Transceiver (BU-63152)
  - Requires +5V Power Supply
  - Temp Range: -55°C to +85°C
  - Harris I/O Compatibility
  - Conforms Fully to MIL-STD-1553A/B, and 1760
  - Low Power Consumption

**Applications:**
- Military
- Commercial Aerospace
- Industrial

**Complete Info:**
- www.ddc-web.com/BU-63155
- www.ddc-web.com/BU-63152

## Dual 3.3V Transceiver

### Model: BU-67401L

**Features:**
- World’s Lowest Power MIL-STD-1553 Transceiver
- Temp Range: -55°C to +125°C
- 7mm x 7mm (0.28in. x 0.28in.)
- Requires +3.3V Power Supply
- Small 48-Pad LPCC Package
- MIL-STD-1553A/B, MIL-STD-1760, and MacAir Compatible Transceiver

**Applications:**
- Mission Computers
- Digital Data Recorders
- LRU’s
- Radios/Modems
- Displays
- Ground Vehicles
- Commercial Aerospace
- Radar Systems/Situational Awareness

**Complete Info:**
- www.ddc-web.com/BU-67401L

## ARINC 429 Controllers

### Model: DD-00429

**Features:**
- 128 x 32 Shared RAM Interface
- Temp Range: -55°C to +85°C
- Label and Destination Decoding and Sorting
- Two 32 x 32 Transmit FIFOs
- Four 32 x 32 Receive FIFOs
- Built-in Fault Detection
- Free “C” Library Software

**Applications:**
- Military
- Commercial Aerospace
- Industrial

**Complete Info:**
- www.ddc-web.com/DD-00429

### Model: DD-42900

**Features:**
- 128 x 32 Shared RAM Interface
- Label and Destination Decoding and Sorting
- Two 32 x 32 Transmit FIFO’s
- Four 32 x 32 Receive FIFO’s
- Built-in Fault Detection
- Temp Range: -40°C to +85°C
- Free “C” Library Software
- Interfaces Easily to 8- or 16-bit Microprocessors

**Applications:**
- Military
- Commercial Aerospace
- Industrial

**Complete Info:**
- www.ddc-web.com/DD-42900
## ARINC 429 Line Receivers

<table>
<thead>
<tr>
<th>Quad Line Receiver</th>
<th>Single Line Receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model:</strong> DD-41044, DD-41045</td>
<td><strong>Model:</strong> DD-41041</td>
</tr>
<tr>
<td><strong>Applications:</strong></td>
<td><strong>Applications:</strong></td>
</tr>
<tr>
<td>• Avionics Data Communication</td>
<td>• Avionics Data Communication</td>
</tr>
<tr>
<td>• ARINC Level to CMOS/TTL Conversion</td>
<td>• ARINC Level to CMOS/TTL Conversion</td>
</tr>
<tr>
<td><strong>Features:</strong></td>
<td><strong>Features:</strong></td>
</tr>
<tr>
<td>• Converts ARINC 429 Levels to TTL/CMOS Digital Data</td>
<td>• Converts ARINC 429 Levels to TTL/CMOS Digital Data</td>
</tr>
<tr>
<td>• Inputs Internally Protected to Lightning Requirements of DO-160D Level A3</td>
<td>• Inputs Internally Protected to Lightning Requirements of DO-160D Level A3, Waveforms 3, 4, and 5 with No Additional Protection Required</td>
</tr>
<tr>
<td>• Operates at Data Rates Beyond ARINC 429 Specifications to 5MHz</td>
<td>• 3.3V and 5V Operation</td>
</tr>
<tr>
<td>• 5V or 3.3V Operation</td>
<td>• 8 Lead SOIC Package</td>
</tr>
<tr>
<td>• 20L TSSOP Package</td>
<td>• Two Volt Receiver Hysteresis</td>
</tr>
<tr>
<td>• One-half Volt Receiver Hysteresis</td>
<td><strong>Complete Info:</strong> <a href="http://www.ddc-web.com/DD-4104X">www.ddc-web.com/DD-4104X</a></td>
</tr>
</tbody>
</table>

### ARINC 429 Line Drivers

**Model:** DD-41070

**Applications:**
- Avionics Data Communication
- CMOS/TTL to ARINC Level Conversion

**Features:**
- TTL/CMOS ARINC 429 Line Driver
- HI/LO Speed Control Pin for HI (100KBS) or Lo (12.5KBS) Speed Slew Rates
- ±9.5V to ±16.5V Supplies
- Drives Full ARINC Load
- Output Resistor Options: 0, 10, or 37.5 Ohms
- Tristate Output Options
- 8 Lead SOIC Package with Exposed Pad for Thermal Enhancement

**Complete Info:** [www.ddc-web.com/DD-4107x](http://www.ddc-web.com/DD-4107x)

### Did You Know?

DDC MIL-STD-1553 components have been in service since the early 1980’s. From 2000 to 2007, DDC had over 200 million hours of in-service history on the EMACE ASIC.

DDC’s data bus solutions have been designed into many military and commercial platforms, including:

- Airbus A350-XWB
- The F-16 Falcon
- The B-1 Bomber
- The F-35 (JSF)
- The AH-64 Apache attack helicopter
- M1A2 Abrams
- The Space Shuttle
- The EuroFighter
- The International Space Station
- The New Horizons Space Craft
- Boeing 767 Tanker Aircraft
- F-15
- F-22
- Rafale
- Tornado
**NHi Transceivers**

**Single 3.3V Transceiver**

- **Model:** NHi-15LV901
- **Features:**
  - Compliant with MIL-STD-1553 and MIL-STD-1760
  - NHi Proprietary Transceiver ASIC
  - Pulse 1553 Dual Ratio Transformer
  - Short Circuit Tolerant
  - Low Dissipation Power
  - Superior Noise Filter

- **Applications:**
  - Mission Computers
  - Digital Data Recorders
  - LRU
  - Radios/Modems
  - Displays
  - Ground Vehicles
  - Commercial Aerospace
  - Radar Systems/Situational Awareness

**Complete Info:** [www.ddc-web.com/NHi](http://www.ddc-web.com/NHi)

**Dual 5V Transceiver**

- **Model:** NHi-1567
- **Features:**
  - Fully Compliant MIL-STD-1553 A&B, MIL-STD-1760, and MacAir Dual Transceivers
  - Single 5V ±10% Supply
  - 0.95 Watts Max Power Dissipation at 100% Duty Cycle
  - Output Driver Withstands Short Circuit Fault Indefinitely with Built-In Shutdown/Recovery Circuit
  - Proprietary Monolithic Design Provides Superior Reliability, Noise Performance, and Thermal Impedance

- **Applications:**
  - Mission Computers
  - Digital Data Recorders
  - LRU
  - Radios/Modems
  - Displays
  - Ground Vehicles
  - Commercial Aerospace
  - Radar Systems/Situational Awareness

**Complete Info:** [www.ddc-web.com/NHi](http://www.ddc-web.com/NHi)

**Dual 3.3V/5V Transceivers**

**Model: NHi-1565ESOIC-1**

- **Features:**
  - Single Supply 5V or 3.3V
  - Output Driver Withstands Short Circuit Fault
  - Proprietary Monolithic Design Provides Outstanding Thermal Impedance Characteristics
  - Superior Noise Performance

- **Applications:**
  - Mission Computers
  - Digital Data Recorders
  - LRU
  - Radios/Modems
  - Displays
  - Ground Vehicles
  - Commercial Aerospace
  - Radar Systems/Situational Awareness

**Complete Info:** [www.ddc-web.com/NHi](http://www.ddc-web.com/NHi)

**Model: NHi-1565CSP**

- **Features:**
  - Dimensions: 7mm x 7mm x 2mm
  - Single Supply 5V or 3.3V
  - 1.5 Watts Max Power Dissipation
  - Output Driver Withstands Short Circuit Fault
  - Proprietary Monolithic Design Provides Outstanding Thermal Impedance Characteristics
  - Superior Noise Performance
  - Drop-In Replacement for Holt Devices

- **Applications:**
  - Mission Computers
  - Digital Data Recorders
  - LRU
  - Radios/Modems
  - Displays
  - Ground Vehicles
  - Commercial Aerospace
  - Radar Systems/Situational Awareness

**Complete Info:** [www.ddc-web.com/NHi](http://www.ddc-web.com/NHi)
Single Channel MIL-STD-1553 Transformers

QPL B-2200/2300/3200 Series

Model: B-22XX, B-23XX, B-32XX

Features:
- Fully Qualified to DESC Specification No. 21038/27
- For use with MIL-STD-1553A/B, MacAir A-5690, A-5232, and A-4905
- 5V, 12V, and 15V Ratios
- Temp Range: -55°C to +130°C
- Built and Tested to MIL-PRF-21038 Level M and Level T
- Listed on QPL-21038-31
- Qualification Validated Annually
- Multitapped to Accommodate Existing System Configurations

Features:
- Mission Computers
- Digital Data Recorders
- LRUs
- Radios/Modems
- Radar Systems/Situational Awareness
- Displays
- Ground Vehicles
- Commercial Aerospace
- Space Flight

Model: HLP-60XX

Features:
- Hermetically Sealed, Ultra-Low Profile 0.175" Maximum Height, Surface Mount Flat Pack
- 3.3V, 5V, 12V, and 15V Ratios
- For use with MIL-STD-1553A/B, MacAir A-5690, A-5232, and A-4905
- Temp Range: -55°C to +130°C
- Built and Tested to MIL-PRF-21038 and MIL-STD-202
- Designed to Meet ESDS Test, MIL-STD-883, Method 3015.3 Category B

Model: MLP-2XXX, MLP-3XXX

Features:
- Miniature, Low-Profile 0.815" Maximum Height Surface Mount Transformer
- 3.3V, 5V, and 15V Ratios
- For use with MIL-STD-1553A/B, MacAir A-5690, A-5232, and A-4905
- Withstands Conventional IR/Convection Reflow Process
- Temp Range: -55°C to +130°C
- Built and Tested to MIL-PRF-21038 and MIL-STD-202

Features:
- Mission Computers
- Digital Data Recorders
- LRUs
- Radios/Modems
- Radar Systems/Situational Awareness
- Displays
- Ground Vehicles
- Commercial Aerospace
- Space Flight

Model: DHP-60XX

Features:
- Hermetically Sealed, Ultra-Low Profile 0.175" Maximum Height, Surface Mount Flat Pack
- 3.3V, 5V, 12V, and 15V Ratios
- For use with MIL-STD-1553A/B, MacAir A-5690, A-5232, and A-4905
- Temp Range: -55°C to +130°C
- Built and Tested to MIL-PRF-21038 and MIL-STD-202
- Designed to Meet ESDS Test, MIL-STD-883, Method 3015.3 Category B

Complete Info: www.BTTC-Beta.com/1553
### Dual Channel MIL-STD-1553 Transformers

#### DSS-2000 Series

**Model:** DSS-2XXX

**Features:**
- Dual Side-By-Side Pulse Transformers
- 0.130" Overall Height
- Built and Tested to MIL-PRF-21038 and MIL-STD-202 Level M and Level T
- 3.3V, 5V, 12V, and 15V Ratios
- For use with MIL-STD-1553A/B, MacAir A-5690, A-5232, and A-4905
- Temp Range: -55°C to +130°C
- Peak Reflow Temperature +225°C

**Applications:**
- Mission Computers
- Digital Data Recorders
- LRU
- Radars/Modems
- Radar Systems/Situational Awareness
- Displays
- Ground Vehicles
- Commercial Aerospace
- Space Flight

**Complete Info:** www.BTTC-Beta.com/1553

#### TSM-2000 Series

**Model:** TSM-2XXX

**Features:**
- Twin Stacked Miniature Dual Pulse Transformers
- For use with MIL-STD-1553A/B, MacAir A-5690, A-5232, and A-4905
- Withstands Conventional IR/Convection Reflow Process
- Temp Range: -55°C to +130°C
- Built and Tested to MIL-PRF-21038 and MIL-STD-202
- 3.3V, 5V, 12V, and 15V Ratios

**Applications:**
- Mission Computers
- Digital Data Recorders
- LRU
- Radars/Modems
- Radar Systems/Situational Awareness
- Displays
- Ground Vehicles
- Commercial Aerospace
- Space Flight

**Complete Info:** www.BTTC-Beta.com/1553

#### DSS-3000 Series

**Model:** DSS-33XX

**Features:**
- Smallest Dual Side-By-Side Pulse Transformers 0.400" x 0.675"
- Built and Tested to MIL-PRF-21038 and MIL-STD-202 Level M and Level T
- 3.3V, 5V, 12V, and 15V Ratios
- For use with MIL-STD-1553A/B, MacAir A-5690, A-5232, and A-4905
- Temp Range: -55°C to +130°C
- Peak Reflow Temperature +225°C

**Applications:**
- Mission Computers
- Digital Data Recorders
- LRU
- Radars/Modems
- Radar Systems/Situational Awareness
- Displays
- Ground Vehicles
- Commercial Aerospace
- Space Flight

**Complete Info:** www.BTTC-Beta.com/1553

#### TST-9000 Series

**Model:** TST-90XX

**Features:**
- Twin Stacked 0.280" Maximum Height 1553 Transformers
- PC Mount, Flat Pack, and Surface Mount
- For use with MIL-STD-1553A/B, MacAir A-5690, A-5232, and A-4905
- Temp Range: -55°C to +130°C
- Built and Tested to MIL-PRF-21038 and MIL-STD-202
- 5V, 12V, and 15V Ratios

**Applications:**
- Mission Computers
- Digital Data Recorders
- LRU
- Radars/Modems
- Radar Systems/Situational Awareness
- Displays
- Ground Vehicles
- Commercial Aerospace
- Space Flight

**Complete Info:** www.BTTC-Beta.com/1553

---

**DATA BUS — TRANSFORMERS**

**Connectivity**

www.ddc-web.com
Data Bus — Transformers

**Couplers**

**Box Coupler**

*Model: BXC-A-X111-1X-XX*

**Features:**
- Full MIL-STD-1553 Compatibility
- Standard 1, 2, 3, 4, 5, or 6 Stub Versions Available
- Custom Multi-Stub Designs Accepted
- Miniature Configurations
- Industry Standard Connectors, Equivalent to Emerson P/N BJ-770
- MIL-R-39007 Q.P.L Resistors

**Applications:**
- Systems Development
- Bench Top Test
- Flight Line Maintenance

*Complete Info: www.BTTC-Beta.com/BXC*

**Space Grade Box Coupler**

*Model: BXC-A-X111-XX-XX*

**Features:**
- Full MIL-STD-1553 Compatibility
- Designed to Meet MIL-STD-981
- Standard Single, Dual, Triple, and Quad-Stub Versions
- Custom Multi-Stub Designs Accepted
- Miniature Configurations
- Industry Standard Connectors, Equivalent to Emerson P/N BJ-770
- MIL-R-39007 Q.P.L Resistors
- Outgassing Levels that Meet NASA Requirements
- Soldering to J-STD-001, Module 6

**Applications:**
- Space Applications
- Satellites
- Launch Vehicles

*Complete Info: www.BTTC-Beta.com/SpaceBXC* See Page 29 for more space-grade products

**Space Grade In-line Coupler**

*Model: ICS-XX-XXXX-XXXX*

**Features:**
- Full MIL-STD-1553 Compatibility
- Designed to Meet MIL-STD-981
- Standard Single, Dual, and Triple-Stub Versions
- Custom Multi-Stub Designs Accepted, Up to 6 Stubs Available
- MIL-17/176-00002 Cable, MIL-R-39007 Q.P.L Resistors, Product Level Type S
- Outgassing Levels that Meet NASA Requirements
- Soldering to J-STD-001, Module 6

**Applications:**
- Space Applications
- Satellites
- Launch Vehicles

*Complete Info: www.BTTC-Beta.com/ICS* See Page 29 for more space-grade products

**Cables**

*Model: CBL-10101XXXX-XX*

**Features:**
- System Development
- Bench Top Test
- Flight Line Maintenance

**Applications:**
- Cable
- Standard Cable Lengths: 36", 72", 120"
- Custom Lengths Available
- Industry Standard Connectors, Equivalent to Emerson P/N PL-75, Other Connectors Available
- Temp Range: -55°C to +200°C

*Complete Info: www.BTTC-Beta.com/BXC*
System Level Software

**dataSIMS**
Avionics Data Bus Test and Analysis Software

- **Features:**
  - Accelerates development and deployment
  - Eliminates cost of learning and maintaining separate software programs
  - Easy-to-use and customize
  - Supports all data protocols and I/O formats

- **Applications:**
  - New Product Development
  - Systems Integration
  - Bus or Network Analysis
  - Production Testing
  - Troubleshooting
  - Data Recording
  - Depot/Flight Line Testing
  - Automatic Test

Model: BU-694X4DS

**LabVIEW® Support Package**
LabVIEW® & LabVIEW® Real-Time/LabWindows®

- **Features:**
  - Simple interface for quick startup and easy programming
  - Access real-time 1553/429 data using LabVIEW
  - Easily integrate data from different types of instruments and sensors
  - Create custom user interface from scratch or by modifying samples provided

Model: BU-69093

**Protocol Analyzers**

**BusTrACER®**
Data Bus Analyzer and Monitor Software

- **Features:**
  - Generate or monitor live MIL-STD-1553 data without writing any code
  - Saves time and reduces development costs
  - Program in minutes with one-click ANSI ‘C’ application source code generation
  - Rapid creation and setup of custom applications

Model: BU-69066

**Commercial Avionics Utilities**

**Data Bus Analyzer and Data Loader Software**

- **Features:**
  - Graphical ARINC 429 data bus analysis and simulation
  - Advanced filtering, message scheduling, and triggering
  - Graphical ARINC 615 data loader
  - Software interface to load data to and from airborne computers

Model: DD-42999SX

**Complete Info:**
- www.ddc-web.com/datasims
- www.ddc-web.com/labview
- www.ddc-web.com/bustracer
- www.ddc-web.com/arincsw
Fibre Channel & High Speed Solutions

High Speed and High Reliability Data Networking

DDC developed its line of Fibre Channel network access controllers and switches to support the real-time processing demands of field-critical data networking between sensors, computer nodes, data storage, displays, and weapons for air, sea, and ground military vehicles. Fibre Channel's architecture is optimized to meet the performance, reliability, and demanding environmental requirements of embedded, real-time, military applications, and designed to endure the multi-decade life cycle demands of military/aerospace programs.

DDC’s Fibre Channel product line includes the FibreACCESS® Network Access Controller (NAC) card and the FibreMATRIX® Switch, both specifically designed to support high-speed and high-reliability data networking applications. These products were developed using in-house intellectual property independent of the life cycles of commercial devices. Ruggedness options for DDC’s Fibre Channel cards include a choice of air and conduction cooling, enabling operation over extended temperature ranges without the need for upscreening. The Fibre Channel cards come with software drivers for multiple operating systems, including VxWorks®, Windows®, and Linux®.

DDC supplies Fibre Channel PMC cards supporting MIL-STD-1760E Class I, aka “High-Speed 1760”. The High-Speed 1760 cards also support the SAE 5725 Miniature Munitions Store Interface and SAE 5726 Interface for Micro Munitions (IMM) standards. These PMC cards are supplied for use in stores management systems, launchers, bomb racks, weapons, and test equipment. The cards enable the transmission and receipt of MIL-STD-1553 command and control messages, along with higher speed data transfers, including for program files, terrain maps, target templates, and digitized images and video.

Platforms and Programs

Fibre Channel is deployed on a number of military/aerospace platforms and programs including the F/A-18E/F, F-16, F-35, B-1B, B-2, E-2D, the AH-64D and MMH helicopters, and AESA Radar. Applications for Fibre Channel include mission computers, processor and DSP clusters; data storage; video processing, distribution, and displays; sensors such as radar, FLIR, and video; serial backplanes and IFF.

### Boards

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Number of Channels</th>
<th>Gb/s Operation</th>
<th>Class 2 &amp; 3 Service Support</th>
<th>Interface</th>
<th>Protocol Support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 2</td>
<td>Broadcast</td>
<td>Multicast</td>
<td>Hunt Groups</td>
</tr>
<tr>
<td>FibreACCESS®</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC-75000</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC-75100</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC-75300</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC-75500</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Speed 1760</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC-752XX</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC-75400</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FibreMATRIX® Switch</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FC-76000</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


### Transformers

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TGB-XXXX</td>
<td>Low-profile; Compliant with ANSI X3T11, Fibre Channel, FC-PH-3</td>
<td>28</td>
</tr>
<tr>
<td>FWT-1394</td>
<td>Military Qualified Firewire Transformer</td>
<td></td>
</tr>
<tr>
<td>GEM-1000</td>
<td>10/100/1000 Base-T Single and Dual Port</td>
<td></td>
</tr>
</tbody>
</table>
**FibreACCESS® XMC Controller**  
**Model: FC-75500**

**Features:**
- Dual-Channel Operation
- XMC Board with x4 PCI Express Interface
- Conduction or Air Cooled PMC for Extended Temperature Operations
- 1 or 2Gb/s Operation
- Class 2 and 3 Service Including Broadcast and Multicast
- Memory-to-Memory Latency under 10µS
- ASM, TCP/IP, SCSI Initiator, Raw Mode, and FC-AE-1553 Protocols

**Applications:**
- Mission Computers
- Radar
- IFF
- Displays and Digital Maps
- FLIR/Night Vision
- File Servers
- Signal Processing Computers
- Test

**Complete Info:** [www.ddc-web.com/FC-75500](http://www.ddc-web.com/FC-75500)

---

**FibreACCESS® Network Controller**  
**Model: FC-75300**

**Features:**
- Dual-Channel Operation
- 66MHz/64-Bit PMC Board
- Conduction or Air Cooled PMC for Extended Temperature Operations
- 1 or 2Gb/s Operation
- Class 2 and 3 Service Including Broadcast and Multicast
- Memory-to-Memory Latency under 20µS
- ASM, TCP/IP, SCSI Initiator and Raw Mode Protocols

**Applications:**
- Mission Computers
- Radar
- IFF
- Displays and Digital Maps
- FLIR/Night Vision
- File Servers
- Signal Processing Computers
- Test

**Complete Info:** [www.ddc-web.com/FC-75300](http://www.ddc-web.com/FC-75300)

---

**High Speed 1760**

**Model: FC-75400**

**Features:**
- High-Speed 1760 PMC Card
- 66MHz/64-Bit PMC Board
- Two Independent Channels
- Each can be FC-AE-1553 NC or NT
- NC: NC-to-NT/NT-to-NC Transfers, Mode Codes, & Broadcast
- NT: Multiple Subaddress Buffering Options, NC-to-NT/NT-to-NC Transfers, Mode Codes, & Broadcast
- Supports Large Transfers for Files and Images
- 3.3V, 64-bit, 66MHz PCI Initiator/Target

**Applications:**
- Weapons Interfaces
- Stores Management Systems
- Launcher and Rack Interfaces
- Weapons Programmers
- Test Equipment
- Simulation

**Complete Info:** [www.ddc-web.com/FC-75400](http://www.ddc-web.com/FC-75400)

---

**FibreMATRIX® Switch**

**Model: FC-76000**

**Features:**
- 16 Optical Port
- Conduction or Air Cooled VME64x Form Factor
- 1 or 2Gb/s Data Rate per Port
- Ethernet and RS-232 Configuration Ports
- Class 2 and 3 Service Including 127 Priority Levels, Broadcast, Multicast, and Hunt Groups
- Supports Implicit or Explicit Fabric Login
- Maximum 2uS Port-to-Port Delay
- ELS Clock Sync Client and Server

**Applications:**
- Military Programs
- Aerospace Programs
- Sensor Interfaces
- High Speed Networking
- Storage Networks
- Test Labs
- Video Transfer

**Complete Info:** [www.ddc-web.com/FC-76000](http://www.ddc-web.com/FC-76000)
## Fibre Channel, Firewire, & Ethernet Transformers

### TGB Series

**Model:** TGB-XXXX  
**Applications:**  
- Mission Computers  
- Radar  
- IFF  
- Displays and Digital Maps  
- FLIR/Night Vision  
- File Servers  
- Signal Processing Computers  
- Test  

**Features:**  
- Twin Gigabit Ethernet/Fibre Channel Transformer  
- Low Profile: 0.185" Maximum Height  
- Weighs Less than 1.0 Gram  
- Temp Range: -40°C to +85°C  
- Compliant with ANSI X3T11, Fibre Channel, FC-PH-3  
- IR/Convection Reflow Compatible  

Complete Info: [www.BTTC-Beta.com/TGB](http://www.BTTC-Beta.com/TGB)

### Firewire

**Model:** FWT-1394-X  
**Applications:**  
- Mission Computers  
- Radar  
- IFF  
- Displays and Digital Maps  
- FLIR/Night Vision  
- File Servers  
- Signal Processing Computers  
- Test  

**Features:**  
- Industry-Leading Firewire Transformer  
- Meets IEEE 1394B Specifications  
- Low Profile: 0.18" Maximum Height  
- Weighs Less than 1.0 Gram  
- Temp Range: -55°C to +125°C  

Complete Info: [www.BTTC-Beta.com/FWT](http://www.BTTC-Beta.com/FWT)

### GEM Series

**Model:** GEM-1000  
**Applications:**  
- Mission Computers  
- Digital Data Recorders  
- LRUs  
- Radios/Modems  
- Radar Systems/Situational Awareness  
- Displays  
- Ground Vehicles  
- Commercial Aerospace  
- Space Flight  
- Video Data  

**Features:**  
- 10/100/1000 Base-T Single and Dual Port  
- IEEE 802.3ab for 1000Base-T Compliant  
- 350µH OCL with 8mA Bias Over Operating Temperature Range  
- IPC-9503 Level 5A Compliant  
- Temp Range: -55°C to +125°C Available  

Complete Info: [www.BTTC-Beta.com/GEM](http://www.BTTC-Beta.com/GEM)

---

**Did You Know?**

DDC expanded our transformer solutions and capabilities with the acquisition on North Hills™ Signal Processing Corporation.

North Hills Signal Processing has combined with Beta Transformer Technology Corporation, and together will provide best-in-class signal and power transformer/magnetic solutions for the defense, civil aerospace, and space industries.

Our expanded product offering now includes new MIL-STD-1553 couplers, active MIL-1395b (FireWire) transformers, RF wideband transformers, MIL-STD-1553 transformers, power transformers, and Scott-T transformers.

For more information, please visit: [www.ddc-web.com/northhills](http://www.ddc-web.com/northhills)
The DDC Microelectronics group, formerly part of Maxwell Technologies, has provided space-qualified products to the space industry for over two decades. The microelectronics group develops radiation-tolerant and radiation-shielded products, including semiconductors and single-board computers. The group specializes in understanding the radiation performance of commercial semiconductors, qualifying selected components for use in space, integrating them with our proprietary radiation mitigation technologies, and manufacturing and screening our products in our DLA approved MIL-PRF-38534 facility.

## Products

DDC’s Microelectronics are available in many different form factors: Single Board Computers, Amplifiers and Comparators, A to D Converters, D to A Converters, Interface Logic, Memories, Microprocessors, Nuclear Event Detectors, Optocouplers, and Switches and Multiplexers. DDC is the exclusive sales and support channel for Isocom optocouplers in North America.

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Part Number</th>
<th>Radiation Technology</th>
<th>Package Style # Of Pins</th>
<th>Specs</th>
<th>Status</th>
<th>Screening Level (DDC’s Classes)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Board Computer, PowerPC® Based</td>
<td>DCS750©</td>
<td>● ● ● ● ● ●</td>
<td>Standard 6U cPCI</td>
<td>● ●</td>
<td>FS, FB, E</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Single Board Computer, PowerPC® Based</td>
<td>DCS750P©</td>
<td>● ● ● ● ● ●</td>
<td>Standard 6U cPCI</td>
<td>● ●</td>
<td>Prototype</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Analog to Digital Converters</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADC, 8 Bit, 73.5 kSPS</td>
<td>7820</td>
<td></td>
<td>20</td>
<td>● ●</td>
<td>S, B, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>ADC, 12 Bit, 100 kSPS</td>
<td>7672</td>
<td></td>
<td>24</td>
<td>24</td>
<td>S, B, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>ADC, 12 Bit, 41 MSPS</td>
<td>9042</td>
<td></td>
<td>28</td>
<td></td>
<td>S, B, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>ADC, 14 Bit, 10 MSPS</td>
<td>9240LP</td>
<td></td>
<td>44</td>
<td></td>
<td>K, H, I, E</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>ADC, 14 Bit, 83 kSPS, Single Supply</td>
<td>7872A</td>
<td></td>
<td>16</td>
<td>16</td>
<td>S, B, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>ADC, 16 bit, 100 kSPS, Serial</td>
<td>7809ALP</td>
<td></td>
<td>24</td>
<td></td>
<td>K, H, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>ADC, 16 bit, 200 kSPS</td>
<td>976A</td>
<td></td>
<td>28</td>
<td></td>
<td>S, B, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Digital to Analog Converters</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAC, 12 Bit Serial</td>
<td>8143</td>
<td></td>
<td>16</td>
<td></td>
<td>S, B, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>DAC, 12 Bit, Buffered, Multiplying</td>
<td>7545B</td>
<td></td>
<td>20</td>
<td>20</td>
<td>S, B, I, E</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>DAC, 16 Bit, Low Power</td>
<td>7846B</td>
<td></td>
<td>28</td>
<td></td>
<td>S, B, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>DAC, 16 Bit, 30 MSPS</td>
<td>768A</td>
<td></td>
<td>28</td>
<td></td>
<td>S, B, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Low Voltage 3.3V EEPROM (200ns or 250ns Access Time) (Available in RAD-Hard and RAD Tolerant Versions)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EEPROM, 1 Mb (128kb x 8)</td>
<td>28LV010</td>
<td></td>
<td>32</td>
<td>32</td>
<td>S, B, I, E</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>EEPROM, 1 Mb (128kb x 8)</td>
<td>28LV011</td>
<td></td>
<td>32</td>
<td></td>
<td>S, B, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>EEPROM, 4 Mb (512kb x 8)</td>
<td>79LV0408</td>
<td></td>
<td>40</td>
<td></td>
<td>K, H, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>EEPROM, 8 Mb (256kb x 32)</td>
<td>79LV0832</td>
<td></td>
<td>96</td>
<td></td>
<td>K, H, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>EEPROM, 20 Mb (512kb x 40) Rad-Stak®</td>
<td>79LV2040</td>
<td></td>
<td>100</td>
<td></td>
<td>K, H, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>EEPROM, 20 Mb (512kb x 40) Dual-Cavity</td>
<td>79LV2040B</td>
<td></td>
<td>100</td>
<td></td>
<td>K, H, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>5.0V EEPROM (120 ns, 150ns, or 200ns Access Time) (Available in RAD-Hard and RAD Tolerant Versions)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EEPROM, 1 Mb (128kb x 8)</td>
<td>28C010T</td>
<td></td>
<td>32</td>
<td>32</td>
<td>V, Q, S, B, E, I</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>EEPROM, 1 Mb (128kb x 8)</td>
<td>28C011T</td>
<td></td>
<td>32</td>
<td></td>
<td>V, Q, S, B, E, I</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>EEPROM, 4 Mb (512kb x 8)</td>
<td>79CD408</td>
<td></td>
<td>40</td>
<td></td>
<td>K, H, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>EEPROM, 8 Mb (256kb x 32)</td>
<td>79CD832</td>
<td></td>
<td>96</td>
<td></td>
<td>K, H, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>EEPROM, 20 Mb (512kb x 40) Rad-Stak®</td>
<td>79C2040</td>
<td></td>
<td>100</td>
<td></td>
<td>K, H, I, E</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>EEPROM, 20 Mb (512kb x 40) Dual-Cavity</td>
<td>79C2040B</td>
<td></td>
<td>100</td>
<td></td>
<td>K, H, I, E</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Visit www.ddc-web.com/me for complete product information.
## MICROELECTRONICS Connectivity

### Low Voltage 3.3V SRAM (20ns, 25ns or 30ns Access Time)

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Part Number</th>
<th>Radiation Technology</th>
<th>Package Style</th>
<th># Of Pins</th>
<th>Specs</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRAM, 4 Mb (512kb x 8)</td>
<td>33V0008</td>
<td></td>
<td>Flat Pack</td>
<td>32</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>SRAM, 16 Mb (512kb x 32)</td>
<td>8V1632</td>
<td></td>
<td>Flat Pack</td>
<td>68</td>
<td></td>
<td>K, H, I, E</td>
</tr>
</tbody>
</table>

### SDRAM (100MHz Operating Frequency)

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Part Number</th>
<th>Radiation Technology</th>
<th>Package Style</th>
<th># Of Pins</th>
<th>Specs</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDRAM, 256 Mb (16Mb x 16)</td>
<td>48SD1616</td>
<td></td>
<td>Flat Pack</td>
<td>72</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>SDRAM, 512 Mb (32Mb x 8)</td>
<td>48SD3208</td>
<td></td>
<td>Flat Pack</td>
<td>72</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>SDRAM, 1.0 Gb (32Mb x 32)</td>
<td>72SD3232B</td>
<td></td>
<td>Flat Pack</td>
<td>72</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>SDRAM, 1.25 Gb (32Mb x 40) Rad-Stak®</td>
<td>97SD3240</td>
<td></td>
<td>Flat Pack</td>
<td>132</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>SDRAM, 1.25 Gb (32Mb x 40) Dual-Cavity</td>
<td>97SD3248BB</td>
<td></td>
<td>Flat Pack</td>
<td>132</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>SDRAM, 1.5 Gb (32Mb x 48) Rad-Stak®</td>
<td>97SD3248</td>
<td></td>
<td>Flat Pack</td>
<td>132</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>SDRAM, 1.5 Gb (32Mb x 48) Dual-Cavity</td>
<td>97SD3248BB</td>
<td></td>
<td>Flat Pack</td>
<td>132</td>
<td></td>
<td>K, H, I, E</td>
</tr>
</tbody>
</table>

### PROM - OTP EROM (120ns, 150ns or 200ns Access Time)

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Part Number</th>
<th>Radiation Technology</th>
<th>Package Style</th>
<th># Of Pins</th>
<th>Specs</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROM, 512kb (64kb x 8)</td>
<td>27CS12T</td>
<td></td>
<td>Flat Pack</td>
<td>32</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>PROM, 512kb (32kb x 16)</td>
<td>27CS16T</td>
<td></td>
<td>Flat Pack</td>
<td>40</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>PROM, 1 Mb (128kb x 8)</td>
<td>27CD10T</td>
<td></td>
<td>Flat Pack</td>
<td>32</td>
<td></td>
<td>S, B, I, E</td>
</tr>
</tbody>
</table>

### Flash

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Part Number</th>
<th>Radiation Technology</th>
<th>Package Style</th>
<th># Of Pins</th>
<th>Specs</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLASH, NAND, 32 Mb (4Mb x 8)</td>
<td>29F0408</td>
<td></td>
<td>Flat Pack</td>
<td>44</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>FLASH, NAND, 128 Mb (16Mb x 8)</td>
<td>6F1608</td>
<td></td>
<td>Flat Pack</td>
<td>24</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>FLASH, NAND, 32 Gb x8 – High Density</td>
<td>29F32G08</td>
<td></td>
<td>Flat Pack</td>
<td>68</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>FLASH, NAND, 64 Gb x16 – High Density</td>
<td>6F64G16</td>
<td></td>
<td>Flat Pack</td>
<td>68</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>FLASH, NAND, 128 Gb x16 – High Density</td>
<td>6F128G16</td>
<td></td>
<td>Flat Pack</td>
<td>68</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>FLASH, NAND, 256 Gb x16 – High Density</td>
<td>6F256G16</td>
<td></td>
<td>Flat Pack</td>
<td>68</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>FLASH, NAND, 12 Gb x24 – High Density</td>
<td>6F12G24</td>
<td></td>
<td>Flat Pack</td>
<td>70</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>FLASH, NAND, 24 Gb x24 – High Density</td>
<td>6F24G24</td>
<td></td>
<td>Flat Pack</td>
<td>70</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>FLASH, NAND, 96 Gb x24 – High Density</td>
<td>6F96G24</td>
<td></td>
<td>Flat Pack</td>
<td>70</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>FLASH, NAND, 192 Gb x24 – High Density</td>
<td>6F192G24</td>
<td></td>
<td>Flat Pack</td>
<td>70</td>
<td></td>
<td>K, H, I, E</td>
</tr>
<tr>
<td>FLASH, NOR, 512 Mb (x 8 or x16) – HD</td>
<td>56F6408</td>
<td></td>
<td>Flat Pack</td>
<td>56</td>
<td></td>
<td>S, B, I, E</td>
</tr>
</tbody>
</table>

### Processor and Peripherals

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Part Number</th>
<th>Radiation Technology</th>
<th>Package Style</th>
<th># Of Pins</th>
<th>Specs</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microprocessor, 32 Bit, 25 MHz</td>
<td>80386DX</td>
<td></td>
<td>Flat Pack</td>
<td>164</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>Math Co-Processor</td>
<td>80387DX</td>
<td></td>
<td>Flat Pack</td>
<td>68</td>
<td></td>
<td>S, B, I, E</td>
</tr>
</tbody>
</table>

### Multiplexers

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Part Number</th>
<th>Radiation Technology</th>
<th>Package Style</th>
<th># Of Pins</th>
<th>Specs</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Channel, Fault Protected</td>
<td>358</td>
<td></td>
<td>Flat Pack</td>
<td>16</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>16 Channel</td>
<td>306</td>
<td></td>
<td>Flat Pack</td>
<td>28</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>16 Channel, Fault Protected</td>
<td>338</td>
<td></td>
<td>Flat Pack</td>
<td>16</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>128 Channel, Fault Protected</td>
<td>81840</td>
<td></td>
<td>Flat Pack</td>
<td>256</td>
<td></td>
<td>K, H, I, E</td>
</tr>
</tbody>
</table>

### Nuclear Event Detectors

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Part Number</th>
<th>Radiation Technology</th>
<th>Package Style</th>
<th># Of Pins</th>
<th>Specs</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designed In Rad-Hard</td>
<td>HSN-500</td>
<td></td>
<td>Flat Pack</td>
<td>14</td>
<td></td>
<td>H</td>
</tr>
<tr>
<td>Designed In Rad-Hard w/Event Flag</td>
<td>HSN-1000</td>
<td></td>
<td>Flat Pack</td>
<td>14</td>
<td></td>
<td>H</td>
</tr>
<tr>
<td>Guaranteed Rad-Hard</td>
<td>HSN-2000</td>
<td></td>
<td>Flat Pack</td>
<td>14</td>
<td></td>
<td>H</td>
</tr>
<tr>
<td>Guaranteed Rad-Hard w/Event Flag</td>
<td>HSN-3000</td>
<td></td>
<td>Flat Pack</td>
<td>14</td>
<td></td>
<td>H</td>
</tr>
</tbody>
</table>

### Amplifier and Comparators

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Part Number</th>
<th>Radiation Technology</th>
<th>Package Style</th>
<th># Of Pins</th>
<th>Specs</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparator, High Speed</td>
<td>803</td>
<td></td>
<td>Flat Pack</td>
<td>8</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>Operational Amplifier, Quad, Rail to Rail</td>
<td>6884</td>
<td></td>
<td>Flat Pack</td>
<td>14</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>Operational Amplifier, Dual</td>
<td>OP220</td>
<td></td>
<td>Flat Pack</td>
<td>8</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>Operational Amplifier, Dual, 4 MHz</td>
<td>OP284B</td>
<td></td>
<td>Flat Pack</td>
<td>8</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>Operational Amplifier, Quad</td>
<td>OP400A</td>
<td></td>
<td>Flat Pack</td>
<td>16</td>
<td></td>
<td>S, B, I, E</td>
</tr>
<tr>
<td>Operational Amplifier, Quad, Low Voltage</td>
<td>OP490</td>
<td></td>
<td>Flat Pack</td>
<td>16</td>
<td></td>
<td>S, B, I, E</td>
</tr>
</tbody>
</table>
Note: DDC offers radiation tolerant solutions, located throughout this catalog. Look for the Radiation Tolerant Shield logo on our space grade products.

www.ddc-web.com
### Optocouplers - High Speed

<table>
<thead>
<tr>
<th>Part Number</th>
<th>CTR (%)</th>
<th>Isolation Breakdown Voltage (VDC)</th>
<th>Continuous Forward Current Max (mA)</th>
<th>Typical Data Rate</th>
<th>Propagation Delay Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>MC800</td>
<td>9</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
<td>400Mbit/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.0</td>
</tr>
<tr>
<td>CH380</td>
<td>9</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
<td>1Mbit/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.0</td>
</tr>
<tr>
<td>CSM1800/01</td>
<td>9</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
<td>1Mbit/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.0</td>
</tr>
<tr>
<td>CD850</td>
<td>9</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
<td>1Mbit/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.0</td>
</tr>
<tr>
<td>CS800/801</td>
<td>15</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
<td>700Kbit/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.0</td>
</tr>
<tr>
<td>4N55</td>
<td>9</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
<td>1Mbit/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.0</td>
</tr>
<tr>
<td>CSM168-2</td>
<td>9</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
<td>1Mbit/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.0</td>
</tr>
<tr>
<td>CSM168-4</td>
<td>9</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
<td>1Mbit/s</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.0</td>
</tr>
</tbody>
</table>

### Optocouplers - High Gain

<table>
<thead>
<tr>
<th>Part Number</th>
<th>CTR (%)</th>
<th>Isolation Breakdown Voltage (VDC)</th>
<th>Continuous Forward Current Max (mA)</th>
<th>Typical Data Rate</th>
<th>Propagation Delay Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH370</td>
<td>300</td>
<td>700</td>
<td>200</td>
<td>2000</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>CH390</td>
<td>300</td>
<td>700</td>
<td>200</td>
<td>2000</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>CSM141A</td>
<td>300</td>
<td>700</td>
<td>200</td>
<td>2000</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>CSM1700</td>
<td>300</td>
<td>700</td>
<td>200</td>
<td>2000</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>CS700/CS5700</td>
<td>300</td>
<td>700</td>
<td>200</td>
<td>2000</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>CD750/CS731</td>
<td>300</td>
<td>700</td>
<td>200</td>
<td>2000</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>6N140A</td>
<td>300</td>
<td>700</td>
<td>200</td>
<td>2000</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>CSM160/161/162-2</td>
<td>300</td>
<td>700</td>
<td>200</td>
<td>2000</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>CSM160/161/162-4</td>
<td>300</td>
<td>700</td>
<td>200</td>
<td>2000</td>
<td>1.9</td>
</tr>
</tbody>
</table>

### Optocouplers - High Gain Photon

<table>
<thead>
<tr>
<th>Part Number</th>
<th>CTR (%)</th>
<th>Isolation Breakdown Voltage (VDC)</th>
<th>Continuous Forward Current Max (mA)</th>
<th>Typical Data Rate</th>
<th>Propagation Delay Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH350</td>
<td>100</td>
<td>100</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>CSM1600</td>
<td>100</td>
<td>100</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>MC600</td>
<td>100</td>
<td>100</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>CD650/651</td>
<td>100</td>
<td>300</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:100@7.5mA">100@7.5mA</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>CS600</td>
<td>100</td>
<td>300</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:100@7.5mA">100@7.5mA</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:75@7.5mA">75@7.5mA</a></td>
</tr>
<tr>
<td>6N134</td>
<td>100</td>
<td>100</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>CSM169-2</td>
<td>100</td>
<td>100</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>CSM169-4</td>
<td>100</td>
<td>100</td>
<td>1500</td>
<td>40</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90</td>
</tr>
</tbody>
</table>

- Visit www.ddc-web.com/me for complete product information.
**Single Board Computer**

Model: SCS750, SCS750G4

**Features:**
- Proven in Space - TRL-9
- Operating Capability
  - 200 - 1800 MIPS
  - 7 - 30 Watts Typical
- Speed and Power Settings can be Managed via Software in Real Time; No Reboot Required
- Outstanding SBC Radiation Hardness
  - TID Greater than 100krads (S)
  - SEU Hard
  - SEL Immune

**Applications:**
- Space

**Complete Info:** www.ddc-web.com/SCS750

---

**A to D Converter**

Model: 9240LPRP

**Applications:**
- Space

**Features:**
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Low Power Dissipation: 285mW
- Single 5V Supply
- Integral Nonlinearity Error: 2.5LSB
- Differential Nonlinearity Error: 0.36LSB
- On-chip Sample-and-Hold Amplifier and Voltage Reference
- Signal-to-Noise and Distortion Ration: 77.5dB
- Spurious-Free Dynamic Range: 90dB
- Total Dose Hardened to 100krads (S), Dependent on Orbit and Mission Duration

**Complete Info:** www.ddc-web.com/AtoD

---

**Digital-to-Analog**

Model: 7545BRP

**Applications:**
- Space

**Features:**
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Low Power Dissipation: 285mW
- Single 5V Supply
- Integral Nonlinearity Error: 2.5LSB
- Differential Nonlinearity Error: 0.36LSB
- On-chip Sample-and-Hold Amplifier and Voltage Reference
- Signal-to-Noise and Distortion Ration: 77.5dB
- Spurious-Free Dynamic Range: 90dB
- Total Dose Hardened to 100krads (S), Dependent on Orbit and Mission Duration

**Complete Info:** www.ddc-web.com/DtoA

---

**Low Voltage 3.3V EEPROM**

Model: 28LV010

**Applications:**
- Space

**Features:**
- 3.3V Low Voltage Operation 128k x 8 Bit EEPROM
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened > 100krads (S), Dependent on Space Mission
- Excellent Single Event Effects
  - SEL: >120MeV/cm²/mg
  - SEU: >85MeV/cm²/mg
- Available in 32-pin RAD-PAK® Flat Pack or 32-pin RAD-PAK® DIP
- Low Power Dissipation
  - 20 mW/MHz Active Current
  - 72 µW Standby (maximum)

**Complete Info:** www.ddc-web.com/EEPROM
**5V EEPROM**

**Model: 28C010T**

**Features:**
- 128k x 8 Bit EEPROM
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened >100krads (Si), Dependent on Space Mission
- Excellent Single Event Effects
  - SEL: >20MeV/cm²/mg
  - SEU: >90MeV/cm²/mg
- Available in 32-pin RAD-PAK® DIP or 32-pin RAD-PAK® Flat Pack
- JEDEC-Approved Byte-Wide Pinout
- Low Power Dissipation
  - 20 mW/MHz Active Current
  - 110 µW Standby (maximum)

**Applications:**
- Space

**Complete Info:** www.ddc-web.com/EEPROM

---

**Low Voltage 3.3V SRAM**

**Model: 97SD3240B**

**Features:**
- 1.25 Gigabit: 8Meg x 32-Bit x 4-Banks
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened >100krads (Si), Dependent on Space Mission
- Excellent Single Event Effects
  - SEL: >85MeV/cm²/mg
  - SEU: >25°C
- Available in 132 Lead Quad Stack Pack Flat Package
- JEDEC Standard 3.3V Power Supply
- 100MHz Operation Clock Frequency

**Applications:**
- Space

**Complete Info:** www.ddc-web.com/SRAM

---

**Model: 89LV1632**

**Features:**
- Four 512k x 8 SRAM Die
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened >100krads (Si), Dependent on Space Mission
- Excellent Single Event Effects
  - SEL: >68MeV/cm²/mg
  - SEU Threshold: 3MeV/cm²/mg
  - SEU Saturated Cross Section: 6E-9cm²/bit
- Available in 68-pin QFP
- 3.3V ±10% Power Supply
- Completely Static Memory - No Clock or Timing Strobe Required

**Applications:**
- Space

**Complete Info:** www.ddc-web.com/SRAM

---

**PROM**

**Model: 27C010T**

**Features:**
- 1 Megabit 128K x 8 Bit OTP PROM Organization
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened >100krads (Si), Dependent on Space Mission
- Excellent Single Event Effects
  - SEL: >80MeV/cm²/mg
  - SEU: >10MHz Active Current
  - 5µW Standby
- Available in 32-pin RAD-PAK® DIP
- Fast Access Time: 120, 150, 200ns (max) Times Available
- Low Power Dissipation

**Applications:**
- Space

**Complete Info:** www.ddc-web.com/PROM
**NAND Flash**

**Model: 69F256G16**

**Features:**
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened > 100krads
- High Density 64, 128, or 256Gb
- NAND Flash Interface: Single Level Cell (SLC) Technology, ONFI 2.2 Compliant
- Operating Voltage: Vcc 3.0 - 3.6V, Vccq 1.7 to 1.95 or 3.0 to 3.6V
- High Reliability Data Storage for Demanding Space Applications
- Ceramic Hermetic Package with Built-in TID Shielding
- Class E, I, H, or K Certified

**Applications:**
- Space

**Complete Info:** [www.ddc-web.com/Flash](http://www.ddc-web.com/Flash)

---

**NOR Flash**

**Model: 56F6408**

**Features:**
- Single Power Supply Operation
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened > 100krads
- Single Event Effects: SEL > 60MeV*cm²/mg at 85°C
- Flexible Sector Architecture: 512 64K Word Sectors
- Hardware and Software Data Protection
- 56-Pin RAD-PAK Flat Pack
- 100,000 Erase/Program Cycles per Sector
- Low Power Consumption: 25mA read, 50mA erase/program, 1µA Standby mode

**Applications:**
- Space

**Complete Info:** [www.ddc-web.com/Flash](http://www.ddc-web.com/Flash)

---

**Microprocessor**

**Model: 80386DX**

**Features:**
- 32-Bit Microprocessor
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened > 100krads (S), Dependent on Space Mission
- Excellent Single Event Effects
  - SELn: 37.6MeV/mg/cm²
  - SEU1: 3.4MeV/mg/cm²
  - SEL Cross Section 1E-3cm²/bit
- 164 Lead Quad Flat Pack
- 8, 16, 32-Bit Data Types
- 8 General Purpose 32-Bit Registers
- Very Large Address Space
  - 4GB Physical
  - 64TB Virtual
  - 4GB Maximum Segment Size

**Applications:**
- Space

**Complete Info:** [www.ddc-web.com/Microprocessor](http://www.ddc-web.com/Microprocessor)

---

**Multiplexers**

**Model: 338**

**Features:**
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened > 100krads (S), Dependent on Space Mission
- 16 Pin RAD-PAK Flat Pack
- On-resistance, <400Ω Max
- Transition Time, <500ns
- On-resistance match, <1Ω
- NO-Off Leakage Current, <20pA @ 25°C
- Single-Supply Operation (4.5V to 30V) Bipolar-Supply Operation (±4.5V to ±20V)
- Plug-in Upgrade for Industry Standard DG508A/DG509A

**Applications:**
- Space

**Complete Info:** [www.ddc-web.com/Multiplexers](http://www.ddc-web.com/Multiplexers)

---

**Connectivity**

MICROELECTRONICS

www.ddc-web.com
Amplifier

Model: OP400A

Features:
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened > 100krads (Si), Dependent on Space Mission
- 16-pin RAD-PAK® Flat Pack
- Low Input Offset Voltage 150µA Max
- Low Offset Voltage Drift: +1.2µV/°C Max (Over -55 to +125°C)
- Low Supply Current (Per Amplifier): 725 µA Max
- High Open-Loop Gain: 5000V/mV Min
- Input Bias Current: 3nA Max

Applications:
- Space

Complete Info: www.ddc-web.com/Amplifier

Comparador

Model: 903RP

Features:
- High-Speed, Low-Power Voltage Comparator
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened > 100krads (Si), Dependent on Space Mission
- 8ns Typ Propagation Delay
- 18mW Power Consumption (Typ at +5V)
- Separate Analog and Digital Supplies
- Flexible Analog and Digital Supplies
- Input Range Includes Negative Supply Rail

Applications:
- Space

Complete Info: www.ddc-web.com/Comparador

Buffers/Drivers/Transceivers

Model: 54LVTH162244

Features:
- RAD-PAK® Radiation-Hardened Against Natural Space Radiation
- Total Dose Hardened > 100krads (Si), Dependent on Space Mission
- No External Resistors Required, Output Ports Have Equivalent 22-Ω Series Resistors
- Supports Mixed-Mode Signal Operation: 5V Input & Output Voltages with 3.3V Vcc
- 48-Pin RAD-PAK Flat Pack
- Supports Unregulated Battery Operation Down to 2.7V
- Typical Vour <0.8V at Vcc = 3.3V, TA = 25°C

Applications:
- Space

Complete Info: www.ddc-web.com/Buffers

Nuclear Event Detectors

Model: HSN-3000

Features:
- Detects Ionizing Radiation Pulses
- 100% Tested/Certified Detection Threshold Level
- Adjustable Circumvention Period
- 100% Testable with Built-In Test
- Flat Pack or DIP Package
- Single +5V Operation
- Radiation Hardness Guaranteed
  - Compliant to MIL-PRF-38534 Class H
  - Dose Rate: 1x10^13rad(Si)/sec
  - Total Dose: 1x10^9rad(Si)
  - Neutron Fluence: 5x10^14n/cm²
  - Approximate Detection Range: 2x10^5 - 2x10^7rad(Si)/sec

Applications:
- Defense

Complete Info: www.ddc-web.com/NED
## Optocouplers

### Transistor

**Model: CS200, CS201**

**Features:**
- Released to European Standard and Complies MIL-STD
- Hermetically Sealed
- High Isolation: 1500Vdc
- 6-Pin Dual In-Line Package
- Low Input Requirements
- High Current Transfer Ratio
- Total Ionizing Dose Tested to 150krad (Si)
- Displacement Damage Tested to $1\text{ MEV} \times 10^{12}$

**Applications:**
- Space
- Defense

**Complete Info:** [www.ddc-web.com/Optocouplers](http://www.ddc-web.com/Optocouplers)

### High Speed

**Model: CSM-1800**

**Features:**
- Released to European Standard and Complies MIL-STD
- Hermetically Sealed
- High Isolation Voltage
- 6-Pin LCC Package
- Low Input Requirements
- High Speed: Typically 2MHz
- Total Ionizing Dose Tested to 1mrad (Si)
- Displacement Damage Tested to $3\text{ MEV} \times 10^{12}$

**Applications:**
- Space
- Defense

**Complete Info:** [www.ddc-web.com/Optocouplers](http://www.ddc-web.com/Optocouplers)

### High Gain

**Model: 6N140A**

**Features:**
- Hermetically Sealed
- High Density Packaging
- 1500V DC Withstand Test Voltage
- Low Input Requirements: 0.5mA
- High Current Transfer Ratio: 100% Typical
- RoHS Compliant

**Applications:**
- Space
- Defense

**Complete Info:** [www.ddc-web.com/Optocouplers](http://www.ddc-web.com/Optocouplers)

### High Gain Photon

**Model: CS600**

**Features:**
- Hermetically Sealed
- High Density Packaging
- 1500V DC Withstand Test Voltage
- Low Input Requirements
- High Current Transfer Ratio
- RoHS Compliant

**Applications:**
- Space
- Defense

**Complete Info:** [www.ddc-web.com/Optocouplers](http://www.ddc-web.com/Optocouplers)
DDC offers proven Smart Power solutions that enable land, sea, air, and space vehicle systems the ability to utilize and distribute raw and conditioned power more efficiently and reliably. The combination of power management via our Solid-State Power Controller (SSPC) technology, which replaces electromechanical switches, relays, and circuit breakers, integrated with DDC Electronics Limited (Pascall) Power Conversion Systems, provide high quality power in a reliable, field-proven, custom “fit and forget” design for the most demanding applications.

DDC solutions provide higher efficiency, reducing fuel consumption, heat dissipation and simplifying integration. These systems enjoy the benefits of:

• Increased Reliability and load protection
• Greater Efficiency through automated load shedding and state of the art power conversion technology.
• Enhanced Performance through operator control with programmable user interfaces.
• Performance through reduced size, weight, and power (SWaP) dissipation

DDC continues to be a technology leader in the design of smart power systems to meet challenging customer demands. Our track record of product developments & improvements are the choice of system integrators worldwide as the smart choice for power solutions.

---

**More Efficiency**

• Network control... saves operator effort and time with centralized system management
• Vehicle health and diagnostics monitoring... eliminates need for unnecessary scheduled maintenance and provides fast identification of faults to be addressed
• Programmable power distribution... saves operator time by allowing power control of multiple loads with a single command
• Reduced size, weight, and power (SWaP)... saves fuel and extends mission range
  - 7x improvement in power/volume density
  - 5x improvement in power/weight density
  - 70% reduction in dissipated power
• Best in industry noise floor... 2 magnitudes lower than the competitors

---

**More Reliability**

• Over 25x Improvement in MTBF... extends mission readiness, range, and effectiveness
  - No vibration-sensitive contacts or wearing parts to fail
• Reduced EMI from controlled switching time... promotes safe and reliable operation of other onboard electronics
• Low risk battle proven technology... High TRL solutions controlling more than 1,000,000 deployed nodes since 1988
• Instant trip, and true I2T wire protection... safeguards mission critical electronics

---

**More Performance**

• Programmable power distribution... reduces logistics costs through flexible software configuration of channels
  - Easily reconfigure trip levels and power up defaults to respond to ever changing mission parameters
  - Channel parallelizing to support high current loads
• Faster response... at least 40 times faster fault clearance time (less than 1ms) allows operator to quickly bring vehicle electronics back on line to continue mission
• Vehicle health and diagnostics monitoring... quickly identifies potential faults to maintain peak vehicle operation
• Flexible architecture reduces total ownership cost through adaptability to new mission requirements
• Optimized custom solutions engineered for maximum performance to serve specific application needs
DDC is the world leader in the design and manufacture of programmable solid-state power controllers (SSPC) for military vehicles, with more than 1,000,000 nodes installed since 1988. In addition to distributing and controlling power with reduced SWaP, while protecting loads and wire harnesses with higher reliability and longer life, DDC SSPCs also enable smart power management that simplifies vehicle power control and provides health and diagnostics data that allows the operator to focus on other mission critical activities.

SSPCs replace traditional electromechanical relays and thermal circuit breakers in power distribution systems, offering more accurate trip protection with solid-state reliability, while reducing overall vehicle-level weight.

DDC was the first to offer SSPCs for ground vehicles, UAVs, and non flight critical civil aerospace platforms. Highly reliable, these products are used in the M2 Bradley Fighting Vehicles, M1 Abrams Main Battle Tank, M109A7 Paladin Howitzer, Oshkosh Defence’s family of Joint Light Tactical Vehicles (JLTV), and other high performance/severe environment applications.

DDC's SSPCs support real-time digital status reporting and computer control, and are equipped with instant trip, true I²T wire protection, multiple value added options, and supports multiple communications protocols. DDC offers custom SSPC modules that are rated up to 400A, and multi-channel boards that are rated up to 100A per channel. SSPCs offer reduced size and weight compared to electromechanical approaches, while also providing enhanced performance and functionality.

**History of Innovation**

More than 1,000,000 DDC SSPC nodes installed on Military Vehicles since 1988
### Solid-State Power Controllers

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Package</th>
<th>Voltage</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20 Pin</td>
<td>DC, AC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Module</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Circuit Card Assembly</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IP-67 Enclosure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>IP-65 Enclosure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Connector</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Power Stubs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current (A)</td>
<td>Programmable</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EMI - Tolerant</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>EMI Reduction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Low Power Dropout</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Over Voltage Protection</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Channel Count</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>High Voltage</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Page</td>
</tr>
</tbody>
</table>

#### Power System
- RP-2A000000XX: 28 Pin, 115 V, <1500 A, >150 V, Page 41

#### Power Distribution Units
- RP-20161XXX/D1: 28 Pin, 238 V, 16 A, Page 41
- RP-201617XXX1: 28 Pin, 140 V, 16 A, Page 41
- RP-20321X: 28 Pin, 120 V, 32 A, Page 41
- RP-20S14000: 28 Pin, 300 V, 4 A, Page 42
- RP-20S16000: 28 Pin, 300 V, 8 A, Page 42
- RP-20S19000: 28 Pin, 200 V, 8 A, Page 42

#### SSPC Modules
- RP-21203XX: 100 Pin, 1-3 V, 1 A, Page 42
- RP-21209XX: 100 Pin, 3-9 V, 1 A, Page 42
- RP-21225XX: 100 Pin, 9-25 V, 1 A, Page 42
- RP-20011000: 25 Pin, 3.5-35 V, 1 A, Page 42
- RP-22000 Series: 28 Pin, 35-150 V, 1 A, Page 42

#### SSPC Boards
- RP-23031M1: 28 Pin, 35 V, 1 A, Page 45
- RP-26231000N1: 28 Pin, 250 V, 20 A, Page 43
- RP-27001X: 115 Pin, 120 V, 10 A, Page 43
- RP-28001000N0: 270 Pin, 150 V, 12 A, Page 43
- RP-2621000NX: 28 Pin, 238 V, 16 A, Page 44
- RP-2640X000NX: 28 Pin, 200 V, 8 A, Page 44
- RP-266XX000N: 28 Pin, 280 V, 32 A, Page 44
- RP-26321000NX: 28 Pin, 200 V, 2 A, Page 45
- RP-2633000NX: 28 Pin, 300 V, 4 A, Page 45
- RP-26311000NX: 28 Pin, 400 V, 4 A, Page 45
- RP-2341000: 28 Pin, 400 V, 4 A, Page 44
- RP-26200: 28 Pin, 238 V, 16 A, Page 44


### Transformers

<table>
<thead>
<tr>
<th>Product Number</th>
<th>MIL-PRF-27</th>
<th>Customizable</th>
<th>Operating Frequency</th>
<th>Phase</th>
<th>Electrical Isolation</th>
<th>High Performance Materials</th>
<th>Small Footprint</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>50Hz</td>
<td>60Hz</td>
<td>400Hz</td>
<td>Up to 3MHz</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Power</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MPT-XX-X-XXX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Custom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch Mode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Custom</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SSPC Power System

Mission System PDU

Model: RP-2A000000X

Features:
- 115VAC and 28VDC PDU System
- MIL-STD-704F, MIL-STD-1275E
- EMI MIL-STD461F, ENV DO-160G
- Supports 4 RP-2702X 115VAC SSPC and 4 RP-26622X 28VDC Boards
- Up to 6 115VAC Input Buses with 42 1/4 (or 14, 3g) Load Inputs
- Up to 8 28VDC Input Buses with 117 Load Outputs
- CANbus & RS-485 (future option) Communication Interfaces
- Supported by DDC's Power Management Controller Unit, Based on the BU-7724X Avionics Computer

Applications:
- Aircraft Mission System Power Distribution

Complete Info: www.ddc-web.com/RP-2A000000x

Flight Safety-Critical PDU

Model: RP-2F241XXXX

Features:
- Nominal 28VDC Operation, MIL-STD-461, MIL-STD-810, DO-160G Compliant
- MIL-STD-1275E, MIL-STD-704 Compliant
- Total Continuous Current of 260A
- 24 Independent Load Channels
- Channels with 10:1 Current Programmability
- Redundant Channel Failsafe Mechanism
- Dual Redundant Host Controllers
- Dedicated Controller per ECB/Load Channel
- Redundant Serial Interface

Applications:
- Commercial and Military Aircrachts
- Unmanned Aerial Vehicles


SSPC Power Distribution Units

32 Channel, Light-Weight PDU

Model: RP-20321X

Features:
- Optimized Weight for Flight < 3lbs
- Nominal 28VDC Operation, MIL-STD-1275E, MIL-STD-704 Compliant
- Total Continuous Current of 120A
- 32 Independent Load Channels
- 5A, 10A, and 20A Channels with 10:1 Current Programmability
- 1A, Low Side Channels
- Instant Trip and PT Protection/Thermal Memory
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

Applications:
- Military Land Vehicles
- Commercial Trucks
- Military and Commercial Ships
- Weapon Systems
- Unmanned Vehicles
- Industrial Controls

Complete Info: www.ddc-web.com/RP-20321X

16 Channel

Model: RP-20161XXXXC1, RP-20161XXXXD1, RP-20161XXXXS1

Features:
- Nominal 28VDC Operation, MIL-STD-1275D, MIL-STD-461, MIL-STD-810, and Def Stan 61-5 Compliant
- Ruggedized, IP-67 Rated Enclosure with Military Connectors
- Total Continuous Current of 238A
- 16 Independent Load Channels
- 8A, 10A, and 25A Channels with 10:1 Current Programmability
- Programmable Channel Trip
- Diagnostics: Load Voltage, Current, & Temperature Monitoring
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

Applications:
- Military Land Vehicles
- Commercial Trucks
- Military and Commercial Ships
- Weapon Systems
- Unmanned Vehicles
- Industrial Controls

SSPC Power Distribution Units (PDU)

8 Channel Small Form Factor

Model: RP-20S19

Features:
- Ruggedized, IP-67 Rated Enclosure with Military Connectors
- Total Continuous Current of 200A
- 8 Independent Load Channels
- 25A Channels with 10:1 Programmability

Applications:
- Military Land Vehicles
- Commercial Trucks
- Military and Commercial Ships
- Weapon Systems
- Unmanned Vehicles
- Industrial Controls


4 Channel Small Form Factor

Model: RP-20S14, RP-20S16

Features:
- Ruggedized, IP-67 Rated Enclosure with Military Connectors
- Total Continuous Current of 300A
- 4 Independent Load Channels
- 75A Channels with 3:1 Programmability

Applications:
- Military Land Vehicles
- Commercial Trucks
- Military and Commercial Ships
- Weapon Systems
- Unmanned Vehicles
- Industrial Controls

Complete Info: www.ddc-web.com/RP-20S1XX

SSPC Modules

Point-of-Load Module

Model: RP-20011601S0

Features:
- Ruggedized Conduction Cooled
- Total Module Current of 35 Amps
- 3.5A - 35A Programmable Current
- Instant Trip and PI Protection/Thermal Memory
- Controlled Rise/Fall Times
- SAE J1939 Compatible CANbus Interface
- Measurement Accuracy Better Than 6%
- Low Power Dissipation

Applications:
- Military Land Vehicles
- Weapon Systems
- Military and Commercial Ships
- Industrial Controls

Complete Info: www.ddc-web.com/RP-200116

Legacy Point-of-Load Modules

Model: RP-22XXX

Features:
- Nominal 28VDC Operation
- Programmable Current Ranges
- EMI-Tolerant
- PT and Instant Trip
- Opto-Isolated Control Circuitry
- MIL-STD-704 Compliant
- MIL-STD-1275B Compliant
- Status Outputs
- Circuit Breaker Emulation with Coordinated Tripping
- Thermal Memory
- No Thermal Derating
- Battle Short Input

Applications:
- Military Land Vehicles
- Weapon Systems
- Military and Commercial Ships
- Industrial Controls

Complete Info: www.ddc-web.com/RP-22XXX
# SSPC Boards

## 115V AC, Multi-Channel

**Model:** RP-27001X

**Features:**
- Nominal 115VAC Operation, MIL-STD-704F Compliant
- Ruggedized Conduction Cooled
- Total Continuous Current of 120A
- 10 Independent Load Channels
- 7.5A and 15A Channels with 10:1 Current Programmability
- Controlled Rise/Fall Times
- Channel Paralleling for High Current Loads
- Configurable for Three Phase (Wye/Delta) Operation
- Instant Trip and I²t Protection/Thermal Memory

**Applications:**
- Commercial and Military Aircrafts
- Military and Commercial Ships
- Weapon Systems
- Unmanned Vehicles
- Industrial Controls

**Complete Info:** [www.ddc-web.com/RP-27001X](http://www.ddc-web.com/RP-27001X)

## 270V DC, 12 Channel

**Model:** RP-28001000N0

**Features:**
- Nominal 270VDC Operation, MIL-STD-1275E, MIL-STD-704F, and Def Stan 61-5 Compliant
- MIL-STD-1275D option
- Ruggedized Conduction Cooled
- Total Continuous Current of 238A
- 16 Independent Load Channels
- 8A, 10A, and 25A Channels with 10:1 Current Programmability
- Instant Trip and I²t Protection/Thermal Memory
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

**Applications:**
- Military Land Vehicles
- Commercial Trucks
- Military and Commercial Ships
- Weapon Systems
- Unmanned Vehicles
- Industrial Controls

**Complete Info:** [www.ddc-web.com/RP-28001X](http://www.ddc-web.com/RP-28001X)

## Line Replaceable Module (LRM)

**Model:** RP-26231000N1

**Features:**
- Nominal 28VDC Operation, MIL-STD-1275E and MIL-STD-704F Compliant
- Field Replaceable Form Factor
- Ruggedized Conduction Cooled
- Total Continuous Current of 50A
- 16 Independent Load Channels, 20 Channel Option
- 8A, 10A, and 25A Channels with 10:1 Current Programmability
- Instant Trip and I²t Protection/Thermal Memory
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

**Applications:**
- Military Land Vehicles
- Commercial Trucks
- Military and Commercial Ships
- Weapon Systems
- Unmanned Vehicles
- Industrial Controls

**Complete Info:** [www.ddc-web.com/RP-262310](http://www.ddc-web.com/RP-262310)

---

**Did You Know?**

Data Device Corporation’s field-proven Solid-State Power Controller technology is now optimized for airborne applications.

Aircrafts require high reliability solutions, with minimal weight and footprints. DDC’s power distribution units combine the reliability of smart power management with flight safety requirements, in a compact and light-weight package.
### SSPC Boards

#### 32 Channel

**Model:** RP-266XX000N0  
**Features:**  
- Nominal 28VDC Operation, MIL-STD-1275E and MIL-STD-704F Compliant  
- Split Input Bus  
- Ruggedized Conduction Cooled  
- Total Continuous Current of 280A  
- 32 Independent Load Channels  
- 10A Channels with 10:1 Current Programmability  
- Instant Trip and Overload Protection/Thermal Memory  
- Controlled Rise/Fall Times  
- Channel Paralleling for High Loads

**Applications:**  
- Military Land Vehicles  
- Commercial Trucks  
- Military and Commercial Ships  
- Weapon Systems  
- Unmanned Vehicles  
- Industrial Controls

**Complete Info:** [www.ddc-web.com/RP-26611](http://www.ddc-web.com/RP-26611)

#### 16 Channel

**Model:** RP-2621X00NX  
**Features:**  
- Nominal 28VDC Operation, MIL-STD-1275E, MIL-STD-704F, and Def Stan 61-5 Compliant  
- MIL-STD-1275D Option  
- Ruggedized Conduction Cooled  
- Total Continuous Current of 238A  
- 16 Independent Load Channels  
- 8A, 10A, and 25A Channels with 10:1 Current Programmability  
- Instant Trip and Overload Protection/Thermal Memory  
- Controlled Rise/Fall Times  
- Channel Paralleling for High Loads

**Applications:**  
- Military Land Vehicles  
- Commercial Trucks  
- Military and Commercial Ships  
- Weapon Systems  
- Unmanned Vehicles  
- Industrial Controls

**Complete Info:** [www.ddc-web.com/RP-26200](http://www.ddc-web.com/RP-26200)

#### 8 Channel

**Model:** RP-2640X000NX  
**Features:**  
- Nominal 28VDC Operation, MIL-STD-1275E, MIL-STD-704F, and Def Stan 61-5 Compliant  
- MIL-STD-1275D Option  
- Ruggedized Conduction Cooled  
- Total Continuous Current of 200A  
- 8 Independent Load Channels  
- 25A Channels with 10:1 Current Programmability  
- Instant Trip and Overload Protection/Thermal Memory  
- Controlled Rise/Fall Times  
- Channel Paralleling for High Loads

**Applications:**  
- Military Land Vehicles  
- Commercial Trucks  
- Military and Commercial Ships  
- Weapon Systems  
- Unmanned Vehicles  
- Industrial Controls

**Complete Info:** [www.ddc-web.com/RP-2640X](http://www.ddc-web.com/RP-2640X)

#### 4 Channel, High Power

**Model:** RP-2341000NX  
**Features:**  
- Nominal 28VDC Operation, MIL-STD-1275E and MIL-STD-704F Compliant  
- Split Input Bus  
- Ruggedized Conduction Cooled  
- Total Continuous Current of 400A  
- 4 x 100 Amp Channels with 4:1 Programmability and Independent Inputs  
- Instant Trip and Overload Protection/Thermal Memory  
- Controlled Rise/Fall Times  
- Channel Paralleling up to 200A

**Applications:**  
- Military Land Vehicles  
- Commercial Trucks  
- Military and Commercial Ships  
- Weapon Systems  
- Unmanned Vehicles  
- Industrial Controls

**Complete Info:** [www.ddc-web.com/RP-23410](http://www.ddc-web.com/RP-23410)
SSPC Boards

4 Channel, High Power

Model: RP-2630X00XNX

Features:
- Nominal 28VDC Operation, MIL-STD-1275E and MIL-STD-704F Compliant
- MIL-STD-1275D Option
- Ruggedized Conduction Cooled
- Total Continuous Current of 300A
- 4 Independent Load Channels
- 75-Amp Channels with 3:1 Programmability
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads

Applications:
- Military Land Vehicles
- Commercial Trucks
- Primary Power Switching
  - Generators
  - Batteries
- Military and Commercial Ships
- Weapon Systems
- Unmanned Vehicles
- Industrial Controls

Complete Info: www.ddc-web.com/RP-26300

2 Channel, High Power

Model: RP-26321000NX

Features:
- Nominal 28VDC Operation, MIL-STD-1275E and MIL-STD-704F Compliant
- Ruggedized Conduction Cooled
- Total Continuous Current of 200A
- 2 Independent Load Channels
- 100-Amp Channels with 4:1 Programmability
- Controlled Rise/Fall Times
- Channel Paralleling for High Loads
- Small Footprint: 114mm x 100mm x 25.42 (4.5in x 3.94in x 1in)

Applications:
- Military Land Vehicles
- Commercial Trucks
- Military and Commercial Ships
- Weapon Systems
- Unmanned Vehicles
- Industrial Controls

Complete Info: www.ddc-web.com/RP-26321

1 Channel

Model: RP-23031M1

Features:
- Nominal 28VDC Operation, MIL-STD-1275E and MIL-STD-704F Compliant
- Ruggedized Conduction Cooled
- Total Module Current of 35 Amps
- 10:1 Current Programmability
- Instant Trip and I²t Protection/Thermal Memory
- Controlled Rise/Fall Times

Applications:
- Military Land Vehicles
- Weapon Systems
- Military and Commercial Ships
- Unmanned Systems
- Industrial Controls

Complete Info: www.ddc-web.com/RP-23031M

www.ddc-web.com
Transformers

Power

Model: MPT-XX-X-XXX

Features:
- MIL-PRF-27, QLP-DSCC Qualified
- Designation MIL-PRF-27/43-01 A/B Through MIL-PRF-27/44-46 A/B
- Temp Range: -55°C to +130°C
- Toroidal Construction for Minimal Size/EMI
- Extensive List of Standard Output Voltages
- Split Secondary Winding Available for Design Flexibility
- Available from 2.0VA to 9.0VA
- Standard Primary Voltage 115V, 26V Available

Applications:
- Mission Computers
- Digital Data Reorders
- LRU's
- Radios/Modems
- Radar Systems/Situational Awareness
- Displays
- Ground Vehicles
- Commercial Aerospace
- Space Flight
- Power Supplies

Complete Info: www.BTTC-Beta.com/MPT

Model: Custom

Features:
- Designed and Manufactured to Meet MIL-PRF-27, Class S, Grade 5 Requirements
- High Performance Materials Enable the Smallest Footprint and Volume
- Available from 1VA to 10kVA
- 50, 60, or 400Hz
- Single or Three Phase
- Custom Designed/Manufactured Transformers Available

Applications:
- Mission Computers
- Digital Data Reorders
- LRU's
- Radios/Modems
- Radar Systems/Situational Awareness
- Displays
- Ground Vehicles
- Commercial Aerospace
- Space Flight
- Power Supplies

Complete Info: www.BTTC-Beta.com/PT

Switch Mode

Model: Custom

Features:
- MIL-PRF-27, QLP-DSCC Qualified
- Designation MIL-PRF-27/43-01 A/B Through MIL-PRF-27/44-46 A/B
- Temp Range: -55°C to +130°C
- Toroidal Construction for Minimal Size/EMI
- Extensive List of Standard Output Voltages
- Split Secondary Winding Available for Design Flexibility
- Available from 2.0VA to 9.0VA
- Standard Primary Voltage 115V, 26V Available

Applications:
- Power Supplies, AC-DC
- Power Supplies, DC-DC
- Power Over Ethernet
- Point of Load
- Gate Drive
- Current Transformers

Complete Info: www.BTTC-Beta.com/SMT

Did You Know?

Beta's power transformers can be fully customized, offering:
- One Phase or Three Phase
- Up to 2000 Volts
- Up to 100 Amps
- Up to 10 kW of Power
- Space Qualification
  - MIL-STD-981
  - MIL-PRF-27
DDC Electronics, Ltd. specializes in the design and manufacture of power supply solutions for extreme environments. With over 30 years of experience in the defence, aerospace and industrial sectors, DDC Electronics, Ltd. is a trusted source for complete solutions in the design, development and manufacture of electronic power conversion products – from single converters to complex multi-function conversion systems. DDC Electronics products are the first choice for power with In-Flight Entertainment & Connectivity (IFEC) and defense systems. There are more than 170,000 Pascall power supply units installed on commercial aircraft. XCEL and Pascall power supply units are in service with Ground, Air and Naval forces across the world, powering state of the art electronic systems, and trusted by industry leaders to deliver reliable proven performance in some of the most challenging environments to be found anywhere. Our power supply solutions are completely customizable.

--- IFEC Systems

Pascall is renowned within the aerospace industry for producing high performance and high reliability cabin and electronics bay power solutions. Our products are currently used in applications such as seat boxes, media file servers, satcom antennas, passenger display screens, direct broadcast satellite TV, cellular phone communications & USB charging for portable electronic devices, with high power capability.

--- Frequency Generation

DDC is a specialist supplier of RF & Microwave components, and sub-systems specifically for frequency generation. With over 30 years designing and manufacturing for the main primes in the United States, Europe and Asia, the RF division has established Pascall as a leading supplier of reliable products on programs with applications including Radar, Communications, Air Traffic Control, ELINT, SIGINT, Marine and Weather radar.

The RF division has particular expertise in ultra low noise frequency sources including the company’s industry leading ultra low noise VHF crystal oscillator range and customized low noise multi-channel fast switching synthesizers.

--- Airborne Defense Systems

DDC has over 30 years of experience designing power conversion products for airborne applications. Our products are in service on many fighter aircraft platforms including Hawk Trainers, F16, Jaguar, Tornado and EuroFighter Typhoon. We also provide solutions for the Nimrod MR2 and MR4 reconnaissance aircraft, Tiger Helicopter, and Watchkeeper Unmanned Aircraft.

--- Maritime Defense Systems

DDC designs and manufactures power supply products for a wide variety of maritime applications, where robust, rugged construction is required to offer high reliability and protection from some of the most demanding environmental conditions, including salt fog, ice and total immersion. On board military surface vessels we provide power for data networking and communications equipment thermal imagers and electronic warfare systems, including radar control and weapons guidance.

--- Ground Defense Systems

DDC has been providing state of the art power conversion solutions for military ground equipment for over 30 years. Our products are in service with ground forces across the world, providing high reliability power for secure communications, optical and infrared imaging, missile command and control systems, and mobile power conditioning solutions for both command centre and remote operated man-portable applications.

--- Design Capabilities

Cabin Power Solutions

Model: 1-14683-R

Features:
- 60V to 122Vrms 1Ø, 360Hz - 800Hz Voltage
- 280W Output Power
- 1 x 28V @ 10A Output, Current Limit Protected, Can be Provided Without for PED Power Solutions
- 200ms Hold-Up Capability
- Compliant to RTCA-DO-160G
- Convection Cooled Chassis
- Isolated RS-485 half-Duplex Serial Interface
- Meets Requirements of EU ROHS Directive 2011/65/EU

Applications:
- USB PED Power Systems
- Connectivity Systems
- Display Power
- Lighting

Complete Info: www.ddc-web.com/114683

IFEC System Solutions

Model: Custom

Features:
- Reliable, Field-Proven Custom "Fit and Forget" IFEC Solutions
- Line Replaceable Units, Integrated Assemblies, and Embedded Power Supplies
- Power Ranges from 10 Watts to Several Kilowatts
- Inputs of 115VAC, 28VDC, or Dual 115VAC/28VDC
- Additional Battery or Capacitor Backup Capability
- Full Conformance to RTCA-DO-160 Requirements, Airbus, and Boeing Specifications

Applications:
- Crew Terminals
- Cell Phone Communications
- SATCOM Antenna Control
- Video Display Unit
- Overhead Display Unit
- Wireless Access Point
- Cabin Lighting
- AC Power
- Portable Electronics Power
- Power Distribution Unit
- IFE Seat Display
- Seat Actuation
- External Camera System
- Flight Data Acquisition

Complete Info: www.ddc-web.com/IFEC

Frequency Generation Solutions

Model: Custom

Features:
- Customized Low Noise Multi-Channel Fast Switching Synthesizers
- C, L, S, and X Band
- Maritime X & S Band Radar Transponders
OCXO and OCXOF Series:
- Ultra Low Noise Crystal Oscillators
- 40 - 160MHz
- Guaranteed Noise Floors of -182dBc/Hz
XMN and XMNP Series:
- Ultra Low Noise Signal Sources
- Integrated Multiplies Covering 200MHz - 3.0GHz

Applications:
- Frequency and Timing Systems
- Lightweight UAV Radar
- Naval Radar
- EW/ECM Receivers
- MRI Scanner
- Missile Seeker
- AESA Fire Control Radar
- Ground Radar

Complete Info: www.ddc-web.com/FG

Defense System Solutions

Model: Custom

Features:
- Airborne:
  - MIL-STD-704 Input Supply Transient Conditions
  - MIL-STD-461 EMC Requirements
  - DO-160 Civil Aircraft EMC
- Maritime:
  - MIL-STD-1399 Shipboard Power
  - STANAG 1008 NATO Power
  - MIL-STD-461 EMC Requirements
- Ground:
  - MIL-STD-1275 Input Supply Supply Transient Conditions
  - DEF STAN 59-411 EMC to Land Class A Requirements
  - MIL-STD-810 Environmental

Applications:
- Defensive Aids Sub System
- GCS Displays
- Airborne Radar Processing
- Helicopter Helmet Display
- UAV/Naval Radar
- Laser Targeting Power
- Data Network Tactical Comm
- Navy Warship ESM System
- Opto-Electronic Periscope
- Ship-to-Air Defense Weapons
- Subsea Electronics
- Ground-to-Air Defense
- Military Vehicle Power
- Optical Imaging/Infrared

Complete Info: www.ddc-web.com/DDCEL/Defense
North Hills: Interconnect | Interface | Wideband | Power

North Hills, acquired by Data Device Corporation in May 2017, is a leading provider of measurement and connectivity solutions. Since 1952, its leading-edge products continue meeting the demanding needs of OEM customers in the military, aerospace, instrumentation, medical and industrial process control markets. North Hills is a leading manufacturer of MIL-STD-1553 data bus couplers, network testers, and related hardware, including cables, connectors, and terminators. North Hills is also a leading manufacturer of RF wideband video and RF transformers, offering superior performance and product consistency.

--- Data Bus Products

North Hills is a leading world wide supplier of MIL-STD-1553 data bus couplers, testers, and accessories such as cable, connectors, terminators, dust caps, etc. We are a one-stop shop with a variety of custom and off-the-shelf products. Our data bus couplers use transformers with superior performance and product consistency, manufactured in accordance with MIL-PRF-21038 with excellent common mode rejection ratios. North Hills has been designing and manufacturing transformers since 1953 and is an approved supplier for all major military programs.

--- High Speed Products

North Hills’ high speed product line includes a large selection of interface cable products targeting the high speed data interconnect market. Cable assembly products for signaling technologies including IEEE1394b / AS643 FireWire, IEEE 802.3 Ethernet, Fibre Channel, and SMPTE comprise the High Speed Interconnect Product Line and join the legacy MIL-STD-1553 products of North Hills.

--- Wideband Products

North Hills’ wideband product line has been providing leading solutions for signal processing needs in wideband frequency range. Impedance matching transformers, balun transformers, DC isolation transformers and ground isolation solutions are all available in packages tailored for instrumentation test, flight and bench testing needs. Products are currently available in numerous configurations and the web-based product finder is a helpful tool to identify the particular product of your design needs.

--- Power Products

North Hills Signal Processing offers a complete line of board mounted magnetics for use in all high reliability environments including military and space applications. Products include numerous transformers topologies including fly-back, push-pull, full bridge, gate drive and buck-boost. Also available are inductors for use in current sense and noise filtration. All magnetics are built in full compliance to MIL-STD-981, MIL-PRF-27, EEE-INST-002 and J-STD-001 and can be configured to meet all NASA outgassing requirements.

--- Development, Testing, and Validation Capabilities


DDC will be releasing documentation for the complete line of North Hills products. For further information, please email info@ddc-web.com, or visit www.ddc-web.com/northhills.
Interconnect Solutions

Model: Data Bus

Features:
- Single/Multi-Stub Configurations
- In-Line Couplers/Box Couplers:
  - Lightweight, Compact Construction
  - Thru-Hole Mounting
  - Flight Qualified
- Cable Assemblies:
  - Custom Configurations
  - Space Qualified
  - Extended Temperature: -110°C to +135°C

Applications:
- Fixed Wing and Rotor Aircraft
- Manned Space Applications

Features:
- Space Rated Couplers/Assemblies:
  - Extended Temperature: -110°C to +135°C
  - Meets NASA Outgassing Req.
  - Lightweight, Rugged Construction
  - Space Flight Qualified
- Accessories:
  - Terminators, Plugs, Jacks, Caps, Adaptors
  - Hand Held Databus Testers

Applications:
- Satellites
- Rocket Lift Systems

Complete Info: www.ddc-web.com/northhills

Interface Solutions

Model: High Speed

Features:
- Transformers:
  - Isolation/Circuit Protection
  - Single/Dual Channel
  - Ethernet/Firewire/SMPTE/Fibre Channel
  - Up to 3.2Gb/s
- Active Transceivers/Active Transformers:
  - AS5643 Firewire
  - Fibre Channel
  - SMPTE - 292M
  - 802.3 Ethernet

Applications:
- Mission Computers
- Radar Systems
- Displays and Digital Maps
- FLIR/Night Vision
- Flight Mission Systems
- Avionics Flight Control Systems

Complete Info: www.ddc-web.com/northhills

Wideband Solutions

Model: Wideband

Features:
- Video Isolation:
  - Humstoppers, Humbuckers
  - Flat Frequency Performance
  - Linear Phase Response
  - Ultra-Wide Bandwidth Instrumentation:
  - Longitudinal Balance Bridges
  - Common Mode Injectors
  - Return Loss Bridges
  - Signal Converters
- Baluns:
  - High Frequency to 1.5GHz
  - Low Insertion/Return Loss
  - Custom - Wide Bandwidth
- SMPTE Applications
- Isolation Transformers:
- RF Power Series
- Extended Video Series
- Coaxial Impedance Adaptors
- Video Splitter/Combiner

Applications:
- Ground Based Radar Systems
- UAV Flight Control Base Stations
- Flight Systems Test
- Instrumentation Bench Test

Complete Info: www.ddc-web.com/northhills

Power Solutions

Model: Power

Features:
- Current transformers:
  - Single/Multi Phase
  - 50kHz to 1MHz
- Transformers:
  - Custom Designs
  - Flyback
  - Push-Pull, Buck/Boost, Buck-Boost
  - Gate Drive
- Power Inductors:
  - Surface Mount/Thru-Hole
  - Toroid/Header Configurations
  - Custom Designs
  - Shielded Options Available

Applications:
- Board Level Power Conversion
- Current Sense Circuits
- IFE Power Systems

Complete Info: www.ddc-web.com/northhills
DDC is a market leader in high reliability motor control and synchro/resolver positioning solutions for aerospace, military, space, and industrial environments. DDC’s products deliver high accuracy positioning and dependability, while being cost effective solutions, to provide much greater reliability and load protection

- COTS/MOTS solutions for synchro/resolver feedback, and motor drive and control
- High accuracy position feedback
- High-performance position, torque, and speed controllers and drives for 3-phase brushless DC motors
- Optimized custom integrated high reliability motion control solutions available to support specific application requirements

--- More Efficiency ---

- Low-cost BLDC motor controllers deliver high performance torque, speed and position control
- Integrated single-module solutions offer the highest power density available
- Synchro/Resolver converters can interface with Synchro, Resolver, LVDT, RVDT, MR, and Hall sensors
- Multi-channel Synchro/Resolver hybrids and cards help reduce overall design cost
- Portable USB Synchro/Resolver test system simplifies motion control testing

--- More Reliability ---

- High MTBF increases system dependability and longevity
- Class H and K Rad Tolerant hybrids meet the extreme demands of space applications
- Field proven Synchro/Resolver converters have years of service history to achieve high Technology Readiness Level (TRL)
- Rugged Synchro/Resolver hybrids are engineered for hermeticity, dust, fluid, shock, vibration and extreme temperatures

--- More Performance ---

- Programmability allows common design to be used across multiple application platforms
- Faster response... at least 40 times faster fault clearance time (less than 1ms) allows operator to quickly bring vehicle electronics back on line to continue mission
- Complementary drives provide reduced power dissipation, along with a smooth transition through zero torque with no “dead zone” for critical applications
- Synchro/Resolver converters provide high precision accuracy, resolution and repeatability
- Synchro/Resolver converters provide a Velocity output for speed monitoring and closing speed loops
- Programmable PCI Express Digital to Synchro/Resolver card offers versatility in motion feedback testing and simulation with instrument grade accuracy
- Widest selection of accuracy and temperature options tailored to fit a vast range of applications
Motor Drives and Controllers

High Precision, Plug-in Modules and Space Grade Hybrids

DDC is the leading manufacturer of high reliability motor drives and controllers for brushed, brushless and induction motors ranging from 100Vdc to 600Vdc. Our optimized torque and speed control solutions are engineered for demanding environments... from military grade environmental cooling systems, turrets, and radars, to space grade actuators, solar arrays, and reaction wheels, to industrial grade valves, pumps and fans. With more than 50 years of field proven performance in the most critical applications, DDC is uniquely qualified to serve your motor drive and control needs.

History of Innovation

Increased Performance, Flexibility, and Value

Compact High Reliability Motor Controllers & Drives
## Motor Drives / Controllers

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Package</th>
<th>Voltage (VDC)</th>
<th>Current (A)</th>
<th>Linearity (%)</th>
<th>Features</th>
<th>Functionality</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW-87XX0X</td>
<td>DIP Style</td>
<td>600</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MC-5080</td>
<td></td>
<td>80</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82560X</td>
<td></td>
<td>100</td>
<td>20</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82564X</td>
<td></td>
<td>400</td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82560EX</td>
<td></td>
<td>28</td>
<td>30</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82540N0</td>
<td></td>
<td>100</td>
<td>10</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82540N1</td>
<td></td>
<td>100</td>
<td>1</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82550N0</td>
<td></td>
<td>100</td>
<td>10</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82550N1</td>
<td></td>
<td>100</td>
<td>1</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82550N3</td>
<td></td>
<td>100</td>
<td>3</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82551N0</td>
<td></td>
<td>200</td>
<td>10</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82331</td>
<td></td>
<td>200</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82333</td>
<td></td>
<td>600</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82335</td>
<td></td>
<td>200</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82340</td>
<td></td>
<td>200</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82341</td>
<td></td>
<td>100</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82342</td>
<td></td>
<td>500</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PWR-82332</td>
<td></td>
<td>400</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82334</td>
<td></td>
<td>100</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW-82342</td>
<td></td>
<td>100</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Motor Controllers

- **Configurable Plug & Play**
- **RS-422/485**
- **RS-232**
- **CANBUS 2.0**

**Model: PW-87XX0X**

**Features:**
- Position, Torque, & Speed Controller & Drive
- 600VDC Rating Available
- Up to 75A Output Current
- 4 Configurable Digital Inputs
- 3 Configurable Analog Inputs
- 3 Hall Effect Sensor Inputs
- Resolver Interface Options: 10-bit or 16-bit Resolution, Reference Oscillator
- 2 Digital Outputs
- 2 Solid-State Relay Outputs
- 2 Isolated Transistor Outputs
- 2 LEDs for Fault and Status Display

**Applications:**
- Pump Motors
- Antenna and Radar Positioning
- Fan and Compressor Motor Controls
- Aircraft Landing Gear Control
- Actuator Systems
- Thrust Vector Position Control
- Motorized Valves
- Capstan Control
- Flight Control
- Gun Turrets

**Complete Info:** [www.ddc-web.com/PW-87XX0X](http://www.ddc-web.com/PW-87XX0X)

**Model: MC-5080**

**Features:**
- Position, Torque, & Speed Controller & Drive
- 80V/30A Voltage/Current Rating
- Motor Stall DSAT Protection
- Encoder Position Feedback
- CANopen Control Interface
- PI Gain Values and Capability to Tune Motor/Load Parameters & Closed Loop Bandwidth
- PWM Frequency 20kHz
- Acceleration & Deceleration Control for Speed Control
- Config. Digital & Analog Inputs
- -40°C to +105°C Operation

**Applications:**
- Pump Control
- Electric Actuators
- Electric Valve Control
- Fuel Pumps
- Industrial Robotics
- Antenna/Camera Position Control
- Unmanned Vehicle Electric Drives and Thrusters
- Autonomous Guided Vehicles
- Medical Diagnostics Control

**Complete Info:** [www.ddc-web.com/MC-5080](http://www.ddc-web.com/MC-5080)
Motor Controllers

DSP Speed/Torque Controllers

Models: PW-82560NX, PW-82562NX, PW-82564NX

Features:
• Self-contained 3-Phase Motor Controller
• Multiple Voltage/Current Ratings: 100V/30A, 200V/10A, 400V/5A
• Up to 95% Duty Cycle Operation
• 7% Linearity, 3% Current Regulating Accuracy
• Programmable via Easy-to-Use GUI or Direct Control Interfaces
• Torque and Speed Control Modes
• 10kHz - 40kHz PWM Frequency
• Hall Effect or Sensorless Feedback
• CANbus and RS-422/RS-485 Control Interfaces

Applications:
• Fan Speed Control
• Compressors
• Pump Control
• Industrial Robotics
• Valve Control
• Electric Actuators
• Electric Valve Control
• Fuel Pumps
• Environmental Cooling Systems
• Industrial Robotics
• Antenna/Camera Position Control
• Gun Turrets
• Unmanned Vehicle Electric Control
• Missile Fin Control
• Fan Control
• Ammunition Loaders

Features:
• Includes DDC's PW-8256X Self-Contained 3-Phase Motor Controller
• 28VDC Bus Powered Version Available
• 10kHz - 40kHz PWM Frequency
• Serial Communication Interface
• Programmable Control Loop Parameters
• Compact Size
• Integrated Control and Power Stages with up to 30A Output Current Capability
• Digital or Analog Current Command Input Options

Models: PW-82560NX, PW-82562NX, PW-82564NX

Evaluation Board

Model: PW-8256XEX

Features:
• Includes DDC's PW-8256X Self-Contained 3-Phase Motor Controller
• 28VDC Bus Powered Version Available
• 10kHz - 40kHz PWM Frequency
• Serial Communication Interface
• Programmable Control Loop Parameters
• Compact Size
• Integrated Control and Power Stages with up to 30A Output Current Capability
• Digital or Analog Current Command Input Options

Applications:
• Fans
• Compressors
• Pump Control
• Valve Control
• Electric Actuators
• Electric Valve Control
• Fuel Pumps
• Environmental Cooling Systems
• Industrial Robotics
• Antenna/Camera Position Control
• Gun Turrets
• UUV Electric Drive Systems
• Missile Fin Control

Models: PW-82560NX, PW-82562NX, PW-82564NX

Did You Know?

DDC's manufacturing facility is ISO 9001:2008 Certified, MIL-PRF-38534 Class H compliant, and DSCC certified as MIL-PRF-38534 Class K compliant—the highest quality level for hybrid microcircuits.

The facility combines the precision of clean room manufacturing and environmental conditioning labs with the in-house support of design, process, and application engineering to closely monitor all phases of product fabrication.

Five decades of quality manufacturing and process control has earned DDC the time-honored trust and confidence of a global network of customers.

Models: PW-82540NX, PW-82541N0, PW-82550NX, PW-82551N0

Features:
• Self-contained 3-Phase Motor Controller
• Operates as Current or Voltage Controller
• 1, 3, or 10A Output Current
• 1.5% Linearity
• 3% Current Regulating Accuracy
• User-Programmable Compensation
• 10kHz - 100kHz PWM Frequency
• Holding Torque through Zero Current
• Cycle-by-Cycle Current Limit

Applications:
• Robotics
• Electromechanical Valve Assemblies
• Actuator Systems
• Antenna and Solar Radar Positioning
• Fan and Blower Motors for Environmental Conditioning
• Reaction Wheels
• Compressor Motors for Cryogenic Coolers

Models: PW-82540NX, PW-82541N0, PW-82550NX, PW-82551N0

Complete Info: www.ddc-web.com/PW-8256XEX

Complete Info: www.ddc-web.com/PW-825X0N

Complete Info: www.ddc-web.com/PW-825XXN

Complete Info: www.ddc-web.com/PW-825XXN
Motor Drives

Model: PWR-82331, PWR-82333, PWR-82335

Features:
- 3-Phase BLDC Motor Drive Hybrid
- Small Size 76.2mm x 53.3mm x 9.91mm (3.0in x 2.1in x 0.39in)
- +200V and +500V Capability
- 30A Current Capability
- High-Efficiency MOSFET or IGBT Drive Stage
- Direct Drive from PWM
- Supports Switching Frequencies from DC to 50kHz
- 0.85°C/W q_j-c Max
- Military Processing Available
- Operating Temperature: -55°C to +125°C

Applications:
- Robotics
- Electromechanical Valve Assemblies
- Actuator Systems
- Antenna and Solar Radar Positioning
- Fan and Blower Motors for Environmental Conditioning
- Reaction Wheels
- Compressor Motors for Cryogenic Coolers

Complete Info: www.ddc-web.com/PWR-8233X

Model: PWR-82340, PWR-82342

Features:
- H-Bridge Motor Drive Hybrid
- Small Size 57.1mm x 53.3mm x 9.91mm (2.25in x 2.1in x 0.39in)
- +200V and +500V Capability
- 30A Current Capability
- High-Efficiency MOSFET or IGBT Drive Stage
- Direct Drive from PWM
- Drives Brush or Brushless DC Motors
- 0.85°C/W q_j-c Max
- Military Processing Available
- Operating Temperature: -55°C to +125°C

Applications:
- Robotics
- Electromechanical Valve Assemblies
- Actuator Systems
- Antenna and Solar Radar Positioning
- Fan and Blower Motors for Environmental Conditioning
- Reaction Wheels
- Compressor Motors for Cryogenic Coolers

Complete Info: www.ddc-web.com/PWR-8234X

Model: PWR-82341

Features:
- H-Bridge Motor Drive Hybrid
- Small Size 45.7mm x 35.6mm x 6.35mm (1.8in x 1.4in x 0.25in)
- +100Vdc Rating
- 5A Current, 10A Peak Capability
- High-Efficiency MOSFET Drive Stage
- Direct Drive from PWM
- Drive Brushless DC or Brush Motors
- Operating Temperature: -55°C to +125°C

Applications:
- Robotics
- Electromechanical Valve Assemblies
- Actuator Systems
- Antenna and Solar Radar Positioning
- Missile Fin Actuators
- Fan and Blower Motors for Environmental Conditioning
- Reaction Wheels
- Compressor Motors for Cryogenic Coolers

Complete Info: www.ddc-web.com/PWR-82341

Did You Know?
Since 2013, DDC has acquired five companies, expanding our product offering.

- National Hybrids (2013):
  - MIL-STD-1553 Components
  - Opto Couplers
  - Oscillators
- Pascall Electronics Ltd (2015):
  - Power Supplies (custom & sub system)
  - Radio Frequency Products
  - Power Supplies (for avionics, land, sea, and industrial)
  - Radiation Tolerant Space Solutions
- North Hills Signal Processing (2017):
  - Transformers and Box Couplers
**Space Grade Hybrids**

**Model: PW-82336**

**Applications:**
- Pump Control
- Electric Actuators
- Electric Valve Control
- Fuel Pumps
- Robotics
- Antenna/Camera Position Control
- Reaction Wheels

**Features:**
- 3-Phase Motor Drive Hybrid
- Small Size: 66mm x 35.6mm x 6.35mm (2.6in x 1.4in x 0.25in)
- 100VDC Rating
- 3A Continuous, 6A Peak Current Capability
- Designed to Meet the Following Radiation Levels
  - 100kRad Total Dose
  - 36MeV SEU
- Operating Temperature: -55°C to +125°C

See Page 29 for more space-grade products


**Model: PWR-82332**

**Applications:**
- Robotics
- Electromechanical Valve Assemblies
- Actuator Systems
- Antenna and Solar Radar Positioning
- Fan and Blower Motors for Environmental Conditioning
- Reaction Wheels
- Compressor Motors for Cryogenic Coolers

**Features:**
- Small Size: 76.2mm x 53.3mm x 10.2mm (3.0in x 2.3in x 0.40in)
- 400 VDC Rating
- 19A Continuous Current Capability
- Class K Processing
- SEU Immune for LET Level of 36 MeV/mg/cm²
- Can Withstand 10kRad (Si) Total Dose Radiation
- Space Station Qualified
- High-Efficiency MOSFET Drive Stage
- Direct Drive for Commutation Logic

See Page 29 for more space-grade products


**Did You Know?**

DDC has been recognized for our outstanding performance and customer service by the industry. The following is a listing of these awards.

- **Raytheon:**
  - 2007 Network Centric Systems 3 Star Supplier Excellence Award

- **Lockheed Martin:**
  - 2010 Platinum Level Preferred Supplier Award
  - 2006 STAR Supplier Award

- **General Atomics:**
  - 2010 Supplier Excellence Award

- **Honeywell Sensor and Guidance:**
  - Supplier Excellence Award

- **L-3 Communication Systems:**
  - West Platinum Level Supplier Award: 2011

- **BAE 2015 #1 Supplier Award**

- **Northrop Grumman:**
  - Aerospace Systems Gold Supplier: 2008

See Page 29 for more space-grade products

Motion Feedback — Synchro/Resolver

Synchro, Resolver, LVDT, RVDT, Inductosyn, MR, and Hall Conversion Solutions

Since introducing the first Synchro converter module in 1968, DDC has served as the world leader in the design and manufacture of Synchro/Resolver-to-Digital and Digital-to-Synchro/Resolver components — offering the smallest, most accurate, widest temperature range data converters available. Additionally, DDC offers a complete line of Synchro/Resolver instrument-grade cards and test equipment including angle position indication and simulation, plus a variety of hardware and software to meet today’s commercial, military, space, and COTS/MOTS requirements.

DDC’s Synchro / Resolver-to-Digital (S/D or R/D) and Digital-to-Synchro / Resolver (D/S or D/R) microelectronic components are the smallest, most accurate converters available, and the building blocks for DDC’s card-level products. Most of these single chip and hybrid converters are based on custom monolithic designs, and are the most reliable converters ever offered. Many products are available with MIL-PRF-38534 processing.

Military, commercial and industrial applications include gimbals, radar, and navigation systems, fire control, flight control surfaces & instrumentation/simulators, motor/motion feedback controls and drives, CNC and robotics systems.

Written by our expert staff, the Synchro/Resolver Conversion Handbook was the first integrated reference source on synchro/resolver data converters, and has served as a teaching aid for many engineers and operators over the years.

Form Factors, Software, & Drivers

DDC is a global leader in Synchro / Resolver Solutions. We offer a broad line of Synchro / Resolver instrument-grade cards including angle position indicators and simulators, plus supporting software to meet today’s COTS / MOTS needs. Board form factors include PCI, PMC, PC/104, cPCI, VME and USB with software support for Windows®, Linux®, LabVIEW®, and VxWorks®.

History of Innovation

Increased Functionality in a Smaller Package

1980s
1 Channel Resolver to Digital Converter
Multi Modules Connected Together

1990s
1 Channel Resolver to Digital Converter
3 in. sq Module with Multi Boards

2000s
1 Channel Resolver to Digital Converter
Small 10mm x 10mm ASIC

2010s
Space and Cost Savings Solutions
Integrated Reference Oscillator and SPI Interface

2017
Extreme Environment Solutions
Extreme Shock and Vibration
High Temperature to +200°C and Beyond

Synchro / Resolver Converters Evolution
## Boards

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Basic Function</th>
<th>No. of Channels</th>
<th>Accuracy To</th>
<th>Operating System</th>
<th>Software</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USB</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB-3661UX-3L0</td>
<td>Portable USB Synchro/Resolver Interface Input Device</td>
<td>2</td>
<td>1 min</td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td><strong>cPCI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB-36XXXXX</td>
<td>Combo Card (API/SIM)</td>
<td>3-9</td>
<td>6</td>
<td>2 min</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td><strong>PMC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB-36410X</td>
<td>Resolver/Synchro-to-Digital Conversion (API) Input</td>
<td>8</td>
<td>1 min</td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>SB-3642X</td>
<td>Resolver/Synchro-to-Digital Conversion (API) Input</td>
<td>8</td>
<td>1 min</td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>SB-3644X</td>
<td>Resolver/Synchro-to-Digital Conversion (SM) Output</td>
<td>4</td>
<td>1 min</td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td><strong>VME</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB-36110VX</td>
<td>12-Channel Synchro/Resolver-to-Digital</td>
<td>12</td>
<td>1 min</td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td><strong>PCI-Express</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB-3623X</td>
<td>Digital-to-Resolver/Synchro Conversion (SIM) Output</td>
<td>6</td>
<td>30 sec</td>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>SB-3625XXK</td>
<td>Digital-to-Resolver/Synchro Conversion (SIM) Input</td>
<td>4/8</td>
<td>1 min</td>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td><strong>PCI</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB-3624X</td>
<td>Resolver/Synchro-to-Digital Conversion (API)</td>
<td>6</td>
<td>1 min</td>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>SB-3620XX</td>
<td>Combination S/R-to-Digital and Digital-to-S/R Converter</td>
<td>2</td>
<td>1 min</td>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td><strong>PC/104</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB-3630DCX*</td>
<td>Digital-to-Resolver/Synchro Conversion (SIM)</td>
<td>2</td>
<td>1 min</td>
<td></td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>SB-3633DCX*</td>
<td>Resolver/Synchro-to-Digital Conversion (API)</td>
<td>4</td>
<td>1 min</td>
<td></td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>SB-3634DCX</td>
<td>Transformer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB-3635DCX*</td>
<td>Oscillator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Evaluation Boards</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RD-1925EX-300</td>
<td>Resolver/Synchro-to-Digital Conversion Development Kits (API)</td>
<td>1</td>
<td>2 min</td>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>RD-19240EX-300</td>
<td></td>
<td>1</td>
<td>8 min</td>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>RD-1922EX-3L0</td>
<td></td>
<td>1</td>
<td>1 min</td>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>RD-19242EX-3L0</td>
<td>Resolver/Synchro-to-Digital Conversion Development Kits (API)</td>
<td>1</td>
<td>8 min</td>
<td></td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>RD-19243EX-3L0</td>
<td></td>
<td>1</td>
<td>5.2 min</td>
<td></td>
<td></td>
<td>61</td>
</tr>
</tbody>
</table>

## Components — Resolver, Synchro, LVDT, RVDT, Inductosyn, MR, and Hall Converters

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Package</th>
<th>Accuracy (Arc-Min)</th>
<th>Resolution</th>
<th>Special Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Resolver-to-Digital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RD-19230</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>RD-19240</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>RD-19242</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>RD-19243</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>RD-1930X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>RDC-19220/2/4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>64</td>
</tr>
<tr>
<td>RDC-19220/25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>64</td>
</tr>
<tr>
<td><strong>Synchro/Resolver-to-Digital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD-14531</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>SD-14550</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>SD-14590/1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>SD-14595/6/7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>SD-1460</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>SDC-14560</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>SDC-14580</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>SDC-14600/05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>SDC-14610/15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>SDC-630/2/4A/ST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>65</td>
</tr>
<tr>
<td><strong>Synchro-to-Digital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDC-14545</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>65</td>
</tr>
</tbody>
</table>

*Visit www.ddc-web.com/sr for complete product information.*
## Components — Digital-to-Synchro and Resolver Converters

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Pin</th>
<th>Package</th>
<th>Output Voltage</th>
<th>Output Current</th>
<th>Special Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR-11525</td>
<td></td>
<td></td>
<td>6.8, 6.81, 11.8, 90</td>
<td>2mA</td>
<td></td>
<td>65</td>
</tr>
<tr>
<td>DRC-10520</td>
<td></td>
<td></td>
<td>60/400 Hz</td>
<td>2mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DRC-11522</td>
<td></td>
<td></td>
<td>60/400 Hz</td>
<td>2mA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Components and Boards — Synchro and Resolver Special Function

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Pin</th>
<th>Package</th>
<th>Special Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBA-3500x</td>
<td>16</td>
<td>DIP</td>
<td>90V Synchro or 2V, 5V, 6.8V, 90V Resolver input to 90V Synchro 25VA, 60/400Hz output</td>
<td>64</td>
</tr>
</tbody>
</table>

## Transformers

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Type</th>
<th>Input Voltage</th>
<th>Output Voltage</th>
<th>Terminals</th>
<th>Mounting</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2104X</td>
<td>115</td>
<td>6.8, 11.8, 26</td>
<td>11.8, 90</td>
<td>Sn63 solder dipped brass copper</td>
<td>Through-Hole</td>
<td>67</td>
</tr>
<tr>
<td>5023X</td>
<td>115</td>
<td>6.8, 11.8, 26</td>
<td>11.8, 90</td>
<td>Sn90 plated alloy 42</td>
<td>SMT</td>
<td>67</td>
</tr>
</tbody>
</table>

## Oscillator

<table>
<thead>
<tr>
<th>Product Number</th>
<th>Pin</th>
<th>Special Features</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSC-15801</td>
<td></td>
<td>Programmable Frequency, 47Hz to 20kHz</td>
<td>66</td>
</tr>
<tr>
<td>OSC-15802</td>
<td></td>
<td>Programmable Frequency with AGC Amplitude Control, 47Hz to 10kHz</td>
<td>66</td>
</tr>
<tr>
<td>OSC-15803</td>
<td></td>
<td>Radiation Tolerant Synchro/Resolver/Inductosyn® Reference Oscillator</td>
<td>66</td>
</tr>
</tbody>
</table>
**USB**

**Synchro/Resolver-to-Digital**

Model: SB-3661XUX-3L0

**Features:**
- 2 Input Channels
- Bit Output for Each Channel
- Self Test Mode
- ±1 Arc Minute Accuracy
- 2VA On-Board Programmable Reference Sine Oscillator
- Driver and API Libraries for Windows® XP/Vista/7 and Linux®
- LabVIEW® Support

**Applications:**
- Motor Control Lab Testing
- Machine Tool Control Lab Testing
- Antenna Control Lab Testing
- Robotics Lab Testing
- Process Control Systems Lab Testing
- Lab Testing
- Production Testing

**Complete Info:** www.ddc-web.com/SB-3661XUX

**cPCI**

**Combination S/R-to-D & D-to-S/R**

Model: SB-36XXXTX

**Features:**
- Three Independent Angle Position Indication Channels
- Six Independent Simulation Channels
- Unpopulated Simulation Channels may be used as Additional Isolated API Channels
- Built-in Test Diagnostics
- Supports +3.3V or +5V PCI Bus
- Driver and API Libraries for Windows® XP and Linux®
- Temp Range: 0°C to +55°C

**Applications:**
- Motor Control
- Machine Tool Control
- Naval Ship Navigation
- Antenna Control
- Process Control Systems

**Complete Info:** www.ddc-web.com/SB-36XXXTX

**PMC**

**Synchro/Resolver-to-Digital**

Model: SB-3641X, SB-3642X, SB-3644X

**Features:**
- Programmable Two-Speed Mode
- ±1 Arc Minute Accuracy
- Each Channel with Independent Reference Input
- User Friendly Windows® GUI SB-3641X & SB-3642X Only:
- 4 or 8 Synchro or Resolver Input Channels
- Prog. Resolution and Bandwidth SB-3644X Only:
- 2 or 4 Synchro or Resolver Input Channels
- Prog. Two Speed Mode

**Applications:**
- High Performance Industrial and Military Position Feedback and Control Systems
- Ship Navigation
- Motor Control
- Machine Tool Control
- Antenna Control
- Robotics and Process Control Systems
- Engineering Development and Production Test

**Complete Info:** www.ddc-web.com/SB-36410x
www.ddc-web.com/SB-3642X
www.ddc-web.com/SB-3644X

**VME**

**Synchro/Resolver-to-Digital**

Model: SB-36110VX

**Features:**
- Up to 12 Independent Converter Channels
- Each Channel Accepts Synchro or Resolver Inputs
- Software Programmable Resolution and Bandwidth
- ±1 Arc Minute Accuracy
- Synthesized Reference
- 16-, 24-, and 32-Bit Addressing Modes
- Temp Range: -40°C to +85°C
- VxWorks® Support

**Applications:**
- Gimbal Control
- Antenna Position
- Machine Tool Control
- Process Control
- Motor Control

**Complete Info:** www.ddc-web.com/SB-36110VX
**PCI-Express**

**Digital-to-Synchro/Resolver**

**Model: SB-3623X**

**Features:**
- 6 Synchro or Resolver Output Channels with independent Reference input
- ±30 Arc Second Accuracy
- Programmable Dynamic Rotation
- Programmable Two-Speed
- On-Board Reference Sine Oscillator
- Temp Range: 0°C to +55°C
- Driver and API Libraries for Windows® XP/7/8/10 and Linux®
- LabVIEW® Support

**Applications:**
- High Performance Industrial and Military Position Feedback and Control Systems
- Motor Control
- Machine Tool Control
- Antenna Control
- Robotics and Process Control Systems

**Evaluation Boards**

Models: RD-19230EX-300, RD-19240EX-300, RD-19242EX-3L0, RD-19243EX-30L0

**Features:**
- Easy On-Card Programmable Features of the RD-19230, RD-19240, RD-19242, & RD-19243 Converter
- Pre-Installed RD-19230/40/42/43 Converter on Associated Development Board
- On-Card Visual LED Indicators for Output Angle and Fault Indicator
- Serial and USB Data Output
- Onboard Ref Sine Oscillator

**Applications:**
- Prototyping New Designs

**Complete Info:** [www.ddc-web.com/SB-3623X](http://www.ddc-web.com/SB-3623X)

**Digital-to-Synchro/Resolver**

**Model: SB-3625XKX**

**Features:**
- 4 or 8 Synchro/Resolver Input Channels with independent Reference input
- 1 Arc Minute Accuracy
- Programmable Resolution and Bandwidth
- Programmable Two-Speed
- Temp Range: 0°C to +55°C
- Driver and API Libraries for Windows® XP/7/8/10 and Linux®
- User-Friendly Windows® Graphical User Interface
- LabVIEW® Support

**Applications:**
- High Performance Industrial and Military Position Feedback and Control Systems
- Motor Control
- Machine Tool Control
- Antenna Control
- Robotics and Process Control Systems

**Complete Info:** [www.ddc-web.com/SB-3625XKX](http://www.ddc-web.com/SB-3625XKX)

**PCI**

**Synchro/Resolver-to-Digital**

**Model: SB-3624X**

**Features:**
- 6 Input Channels
- Software Programmable Resolution and Bandwidth
- ±1 Arc Minute Accuracy
- Onboard Programmable Reference Sine Oscillator
- Universal (+3.3 or +5V) PCI Signaling
- Internal Synthesized Reference
- Half-Size PCI Form Factor
- Transformer Isolation Available
- Temp Range: 0°C to +71°C
- Driver and API Libraries for Windows® 2000/XP/7/8/10 and Linux®
- User-Friendly Windows® Graphical User Interface
- LabVIEW® Support
- Production Testing

**Applications:**
- Motor Control
- Machine Tool Control
- Antenna Control
- Robotics
- Process Control Systems
- Lab Testing
- Production Testing

**Models:**
- RD-19230EX-300, RD-19240EX-300, RD-19242EX-3L0, RD-19243EX-30L0

**Complete Info:**

**Digital-to-Synchro/Resolver**

**Model: SB-3624**

**Features:**
- 6 Input Channels
- Software Programmable Resolution and Bandwidth
- ±1 Arc Minute Accuracy
- Onboard Programmable Reference Sine Oscillator
- Universal (+3.3 or +5V) PCI Signaling
- Internal Synthesized Reference
- Half-Size PCI Form Factor
- Transformer Isolation Available
- Temp Range: 0°C to +71°C
- Driver and API Libraries for Windows® 2000/XP/7/8/10 and Linux®
- User-Friendly Windows® Graphical User Interface
- LabVIEW® Support
- Production Testing

**Applications:**
- Motor Control
- Machine Tool Control
- Antenna Control
- Robotics
- Process Control Systems
- Lab Testing
- Production Testing

**Models:**
- RD-19230EX-300, RD-19240EX-300, RD-19242EX-3L0, RD-19243EX-30L0

**Complete Info:**
Digital-to-Synchro/Resolver

Model: SB-36320CX

Features:
- 2 Independent Output Converter Channels for Synchro, Resolver, or SIN/COS Outputs
- Low (2mA) or Medium (15mA) Power Outputs
- 16-Bit Resolution
- ±1 Arc Minute Accuracy
- Opto-Isolated Discrete I/O for External Control Functions
- Temp Range: -40°C to +85°C

Applications:
- ATE
- Displays
- Positioning Applications

Complete Info: www.ddc-web.com/SB-36320C

Synchro/Resolver-to-Digital

Model: SB-36330CX

Features:
- Up to 4 Independent Input Channels for Synchro/Resolver
- Velocity Output
- Software Programmable Resolution and Bandwidth
- Jumper Programmable Reference Voltage Inputs
- ±1 Arc Minute Accuracy
- Discrete I/O for External Control Functions
- Temp Range: -40°C to +85°C

Applications:
- Motor Control
- Machine Tool Control
- Antenna Control
- Robotics
- Process Control Systems
- Gimbal Control

Complete Info: www.ddc-web.com/SB-36330C

Output Isolation

Model: SB-36340CX

Features:
- Up to 2 Channels of Output Isolation
- Converts Low Voltage to 90 Vrms/400Hz Synchro Output
- Reference Input Isolation
- Conformal Coated
- Mates Directly with SB-36320CX PC/104 Synchro Output Card
- Temp Range: -40°C to +85°C

Applications:
- Naval Navigation Systems
  - Gyro
  - Antenna
  - Steering
- Naval Firing Control Systems
- Military Control Systems
- 90V Synchro Positioning/Simulations

Complete Info: www.ddc-web.com/SB-36340C

Reference Sine Oscillator

Model: SB-36350CX

Features:
- Software Programmable Voltage and Frequency
- Isolated Differential Output
- 5 VA Reference Sine Drive
- 400Hz to 8192Hz
- 2V to 123V
- Temp Range: -40°C to +85°C

Applications:
- ATE
- Displays
- Aircrafts
- Ground Vehicles
- Robotics

Complete Info: www.ddc-web.com/SB-36350C
## Resolver, Synchro, LVDT, RVDT, Inductosyn, MR & Hall Converters

### Model: RD-19230
- **Features:**
  - ±1 Arc Minute Accuracy
  - Programmable Resolution (10, 12, 14, 16 Bits)
  - Parallel Data Output
  - Up to 45 Degree Phase Shift Correction
  - +5V Only Option
  - Dual Bandwidth
  - A Quad B Encoder Emulation
  - 13.22 mm 64-pin Quad Flat Pack
  - Temp Range: -40°C to +85°C

- **Applications:**
  - Military Fire Control Systems
  - Naval Navigation and Weapons Systems
  - Industrial Control
  - Motor Control
  - Machine Tool Control
  - Robotics
  - Factory Automation
  - Hybrid Electric Vehicles
  - Aviation Flight Control Surfaces
  - Unmanned Vehicles

### Model: RD-19242
- **Features:**
  - ±8 Arc Minute Accuracy
  - Programmable Resolution (10, 12, 14 Bits)
  - Serial Data Output
  - Built-in Reference Oscillator
  - Up to 45 Degree Phase Shift Correction
  - +5V Only Option
  - Dual Bandwidth
  - A Quad B Encoder Emulation
  - 13.22mm 52-pin Quad Flat Pack
  - Temp Range: -55°C to +125°C

- **Applications:**
  - Industrial Control
  - Motor Control
  - Factory Automation
  - Hybrid Electric Vehicles
  - Aviation Flight Control Surfaces

### Model: RD-19240
- **Features:**
  - ±8 Arc Minute Accuracy
  - Programmable Resolution (10, 12, 14 Bits)
  - Parallel Data Output
  - Up to 45 Degree Phase Shift Correction
  - +5V Only Option
  - Dual Bandwidth
  - A Quad B Encoder Emulation
  - 13.22mm 52 Pin Quad Flat Pack
  - Temp Range: -55°C to +125°C

- **Applications:**
  - Industrial Motor Control
  - Factory Automation
  - Robotics
  - Hybrid Electric Vehicles
  - Automotive Position Sense

### Model: RD-19243
- **Features:**
  - Up to 5.2 Arc Minute Accuracy
  - Programmable Resolution (10, 12 Bits)
  - SPI and Encoder Emulation (A Quad B) Interface Outputs
  - Integrated Programmable Reference Oscillator
  - 1152 RPS Maximum Tracking Rate, 10-bit Resolution
  - DC, 1kHz to 20kHz
  - +5V Only Option
  - Dual Bandwidth
  - 48-pin Leadless Package
  - Temp Range: -40°C to +85°C

- **Applications:**
  - Hybrid Electric Vehicles
  - Automotive Position Sense

---

**Complete Info:** [www.ddc-web.com/RD-19230](http://www.ddc-web.com/RD-19230)
Resolvers, Synchros, LVDTs, RVDTs, Inductosyns, MR & Hall Converters

Model: RDC-19220/2/4

**Features:**
- ±2 Arc Minute Accuracy
- +5V Only Option
- Only 5 External Passive Components Needed
- Programmable Resolution, Bandwidth, and Tracking
- Differential Resolver and LVDT Input Modes
- Small Size, Available in DDIP, J-Lead, or MQFP Packages
- RoHS Compliant Available
- Temp Range: -55°C to +125°C

**Applications:**
- Motor Control
- Machine Tool Control
- Robotics
- Flight Surface Control
- Radar Antenna Positioning
- Process Control
- Military Fire Control Systems
- Navigation


Model: RDC-19220/2S

**Features:**
- ±2 Arc Minute Accuracy
- +5V Only Option
- Programmable Resolution, Bandwidth, and Tracking
- Up to 45° Phase Shift Correction
- Small Size, Available in DDIP, J-Lead, or MQFP Packages
- RoHS Compliant Versions Available
- Temp Range: -55°C to +125°C

**Applications:**
- Motor Control
- Machine Tool Control
- Robotics
- Flight Surface Control
- Radar Antenna Positioning
- Process Control
- Military Fire Control Systems
- Navigation


Model: RD-1930X

**Features:**
- ±8 Arc Minute Accuracy
- Programmable Resolution (10, 12, 14 Bits)
- Up to 45 Degree Phase Shift Correction
- +5V Only Option
- Programmable Tracking Rate
- 17.53mm 44-pin Ceramic Quad Flat Pack
- RoHS Compliant Available
- Temp Range: -55°C to +200°C
- Parallel Data Output (RD-19300)
- Serial Data Output (RD-19302)
- Built-in Ref Oscillator (RD-19302)

**Applications:**
- Down Hole Drilling
- Extreme Temperature Environments


Model: SBA-3500x

**Features:**
- Powered from Reference
- 90V, 60 or 400Hz Synchro Outputs
- Amplifies 90V, 6.81V, 5V, and 2V Resolver Inputs
- 25 VA Output Drive
- Protected Against Short Circuits, Overloading, Load Transients, Temperature, and Reference Supply Shutdown
- “Power-Up” in Disable or Enable Mode
- Drop-in Replacement for SBA-25001/2/3/4 Series

**Applications:**
- Training Simulators
- Remote Indicators
- Gunfire Control
- Navy Retransmission Systems

Complete Info: [www.ddc-web.com/SBA-3500x](http://www.ddc-web.com/SBA-3500x)
Synchro/Resolver-to-Digital Converters

Model: SD-14550

Features:
- ±1 Arc Minute Accuracy
- Single +5V Power Supply
- 10, 12, 14, or 16 Bit Programmable Resolution
- Synthesized Reference Option
- Small 34-Pin Ceramic Package
- BIT Output
- Velocity Output Eliminates Tachometer
- High Reliability Single Chip Monolithic
- Temp Range: -55°C to +125°C

Applications:
- Radar Antenna Positioning
- Navigation Systems
- Fire Control Systems
- Motor Control

Complete Info: www.ddc-web.com/SD-14550

Model: SD-14620

Features:
- 2 Channels in One Package
- Single +5V Power Supply
- 10, 12, 14, or 16 Bit Programmable Resolution
- Synthesized Reference Option
- Small 54-Pin Ceramic Package
- BIT Output
- Velocity Output Eliminates Tachometer
- High Reliability Single Chip Monolithic
- Temp Range: -55°C to +125°C

Applications:
- Radar Antenna Positioning
- Navigation Systems
- Fire Control Systems
- Motor Control

Complete Info: www.ddc-web.com/SD-14620

Digital-to-Resolver Converters

Model: SDC-630/2/4A/ST

Features:
- Internal Transformer Isolation
- 10, 12, 14, or 16 Bit Resolution
- ±2.6 Arc Minute Accuracy
- Options for Velocity, BIT (Built-In Test)
- Temp Range: -55°C to +105°C

Applications:
- Radar Tracking Systems
- Navigation Systems
- Motor Control

Complete Info: www.ddc-web.com/SDC-630ST

Model: DR-11525

Features:
- ±1 Arc Minute Accuracy
- Operational Up to 10 kHz
- 2Vrms, 6.81Vrms, 11.8VL-L, or Scalable Resolver Outputs
- 2mA RMS Output
- 16 Bit Resolution
- 8 Bit/2 Byte Double Buffered Transparent Latches
- DC-Coupled Reference Accepts Any Waveform
- High-Rel CMOS D/R Chip
- No +5V Supply Required
- Temp Range: -55°C to +125°C

Applications:
- Synchro/Resolver Simulators
- Flight Trainers
- Flight Instrumentation
- Fire Control Systems
- IR
- Radar
- Navigation Systems
- Motor Control Test Systems
- Robotic Control Test Systems

Complete Info: www.ddc-web.com/DR-11525
Digital-to-Synchro Converters

Model: DSC-10510

Features:
- ±2 Arc Minute Accuracy
- 7VA Drive Capability for CT, CDX, or TR Loads
- Double Buffered Transparent Input Latch
- 16 Bit Resolution
- Power Amplifier Uses Pulsating or DC Supplies
- Built-in Test (BIT) Output
- Temp Range: -55°C to +125°C

Applications:
- Flight Simulators
- Flight Instrumentation
- Fire Control Systems
- Flight Data Computers

Complete Info: www.ddc-web.com/DSC-10510

Model: DSC-544, DSC-545

Features:
- 90V, 4.5VA Output
- Powered from Reference Input
- Power Dissipation Cut in Half
- No External ±15V Supplies Required
- No External Transformer Required at 60Hz
- Short Circuit Protection
- Rugged Power Amplifiers with Current Limiting
- Overvoltage Transient Protection
- Thermal Cutoff
- Temp Range: -55°C to +85°C

Applications:
- Simulators
- Flight Trainers
- Flight Instrumentation
- Fire Control Systems

Complete Info: www.ddc-web.com/DSC-544

Oscillator Components

Model: OSC-15801, OSC-15802

Features:
- Programmable Output
  - Frequency from 400Hz to 20kHz
- Scalable Reference Output
- Small 18-Pin DDIP
- Temp Range: -55°C to +125°C

OSC-15801 Only:
- Quadrature Reference Output (±90°) Voltages for Inductosyn Applications

OSC-15802 Only:
- ADI Alternate Source
- Quadrature Reference Output (±90°) Voltages for Inductosyn Applications


Model: OSC-15803

Features:
- Programmable Output
  - Frequency from 400Hz to 20kHz
- Quadrature Reference Output
  - Voltages for Inductosyn Applications
- Small 18-Pin DDIP
- Scalable Reference Output

Applications:
- Space
- Nuclear
- Military
- Inductosyn Applications

Complete Info: www.ddc-web.com/OSC-15803

See Page 29 for more space-grade products
Transformers

**Input Scott-T Series**

**Model:** 2104X, 5203X

**Features:**
- Designed and Manufactured to Meet MIL-PRF-27, Class S, Grade 5 Requirements
- High Input Impedance
- Precise Angle Accuracy Up to 1 Min Max
- Long Life Expectancy - 10,000 Hours
- Rugged, Flame Resistant Case
- Available in Through-hole or Surface Mount Configurations

**Applications:**
- Motor Control
- Radar Antenna Positioning
- Machine Tool Control
- Robotics
- Process Control

**Reference Series**

**Model:** 21049, B-4XX, B-7XX, B-8XX, B-10XX

**Features:**
- Designed and Manufactured to Meet MIL-PRF-27, Class S, Grade 5 Requirements
- High Input Impedance
- Precise Angle Accuracy Up to 1 Min Max
- Long Life Expectancy - 10,000 Hours
- Rugged, Flame Resistant Case
- Available in Through-hole or Surface Mount Configurations

**Applications:**
- Motor Control
- Radar Antenna Positioning
- Machine Tool Control
- Robotics
- Process Control

**Output Scott-T Series**

**Model:** 29XXX, 3XXXX, 4073X, B-10XX, B-XXX

**Features:**
- Designed and Manufactured to Meet MIL-PRF-27, Class S, Grade 5 Requirements
- High Input Impedance
- Precise Angle Accuracy Up to 1 Min Max
- Long Life Expectancy - 10,000 Hours
- Rugged, Flame Resistant Case
- Available in Through-hole or Surface Mount Configurations

**Applications:**
- Motor Control
- Radar Antenna Positioning
- Machine Tool Control
- Robotics
- Process Control

**Did You Know?**

Beta Transformer Technology Corporation (BTTC) expanded production capabilities in 2014 with the acquisition of our partner in Mexico.

Beta Transformer Mexico, S. de R.L. de C.V. is a DLA certified facility that manufactures products, including QPL MIL-STD-1553 transformers, exclusively for BTTC.

BTTC, located in Bohemia, NY, continues to manufacture high performance military, commercial, and space-level magnetic components.
Custom Hybrids and ASICs

Core Competencies and Unique Suite of Capabilities

Data Device Corporation, a world leader in the design and manufacture of high-reliability Connectivity, Power and Control solutions, has been producing custom hybrid and ASIC solutions for use in military, commercial aerospace, space, and industrial applications, for more than 40 years.

DDC’s core competencies and unique suite of capabilities for the production of hybrid and ASIC solutions span every stage of development including electrical design, mechanical design, test engineering, process engineering, manufacturing, and product assurance. DDC is uniquely qualified to support a wide range of application requirements and technologies based upon our decades of experience in analog and digital microelectronics, magnetics, power supplies, radiation mitigation technology and quality certifications for AS9100 Rev C, ISO 9001:2008, EN9100, JIS Q9100, and through the DLA MIL-PRF-38534.

For space and extreme environmental conditions, DDC’s microcircuit experience includes the design and manufacturing of power hybrids, hybrids for space applications, and hybrids designed for high temperature (200°C+) environments such as down-hole oil and gas exploration, and aircraft engines.

Our comprehensive range of capabilities enables DDC to deliver optimized custom hybrid and ASIC solutions to support all application requirements, including build-to-spec, build-to-schematic, and build-to-print. Additionally, DDC has the capacity to support high volume packaging and testing through partnerships with industry leading semiconductor foundries and suppliers.

Custom Hybrids

For more than 40 years, DDC has been a trusted manufacturer of highly reliable hybrid microelectronic solutions, supporting the critical, long life cycle requirements of military, industrial and space applications worldwide. DDC’s experience and expertise includes the design and manufacture of all types of hybrid microelectronics, including analog, digital, mixed signal, power, radiation tolerant/space grade, and high temperature. Our designs are built upon DDC’s extensive process engineering capabilities in hybrid construction and screening, including metal, ceramic, and plastic packages; thick film, thin film, and beryllium substrates; all types of conductors and dielectrics; chip-and-wire, flip chip, and stacked die construction; and a myriad of capabilities in die bonding, wire bonding, lid sealing, and automated test. Additionally, DDC has the capacity to support high volume packaging and testing through partnerships with industry leading semiconductor foundries and suppliers.

Custom ASICs

DDC’s engineering staff includes a team of dedicated ASIC design and test engineers that bring decades of experience, along with design tools and test capabilities to produce analog, digital, and mixed signal ASICs. As the worldwide leader in MIL-STD-1553 data bus, synchro/resolver conversion, and highly reliable solid state power controllers, DDC is uniquely positioned to leverage our in-house experience and expertise to create low-risk, high Technology Readiness Level (TRL) custom ASIC solutions. In addition to our custom ASIC capabilities, DDC designs the ASICs utilized in our standard products, including MIL-STD-1553 transceivers and protocol, resolver-to-digital conversion, and ARINC 429 line drivers and receivers.

DDC’s ASIC engineers are experts in many types of common ASIC building blocks, including linear operational amplifiers, power amplifiers, bandgap references, OTAs, voltage references, various A/D and D/A converter designs, and power electronics including switching regulators, motor controllers and power FETs and diodes. We maintain a transistor-level design library using Cadence design tools to accelerate development. Additionally our ASIC design team has expertise with high-voltage processes and the design of radiation tolerant, latch-up-free ASICs with high total dose (100 krad and higher) and SEE/SEU immunity. For safety-critical applications, we also offer the capability for developing DO-254 compliant designs. Additionally, DDC has the capacity to support high volume packaging and testing through partnerships with industry leading semiconductor foundries and suppliers.
Custom Hybrids

Types of Hybrids

- Metal/Thick Film Substrate
- Ceramic/Thin Film Substrate
- Co-Fired Ceramic
- Plastic BGA
- Flip-Chip
- Stacked Die

Assembly & Processing

Hybrid Assembly and Processing:
- Current Annual Volumes > 120,000 Hybrid/MCMs Devices
- Die Bond Counts From 1 to 90
- Current Die Bond Capacity: > 150,000 Bonds/Month --- 1,800,000 Bonds/Year

Die Bonding:
- Conductive and Non-Conductive Epoxy
- Eutectic Bonding

Wire Bonding:
- Thermosonic ball bonding 1 or 2 mil gold wire for signals
- Ultrasonic bonding for 1.25-20 mil aluminum wires for high current

Flip-Chip Capability:
- Die handling from 0.17 mm to 50 mm, handles 300mm wafer magazines
- Placement accuracy of ±10 µm @ 3s
- Uptime of better than 98 percent

Die Handling:
- Established supply chain relationships with franchised distributors for procurement of die components
  - Currently utilizing Micross, Semi Dice and ES Components
  - Follows DDC’s standard purchasing operating procedures
- Established material handling process for storage of die components
  - Raw material storage room contains nitrogen dry box chambers in 100K clean room

Deposition:
- Hybrid Substrate Fabrication
- Multi-layer Silk-Screening
- Conductive and Non-conductive Materials
- Gold, Ceramic, Resistive Ink

Curing/Drying:
- In-house Conveyor Furnace
  - Temperatures up to +925° C
  - Substrate Built-up Layer upon Layer
  - Interconnections Between Layers

Vacuum Sealing/Solder Reflow Furnace:
- Vacuum Sealing/Solder Reflow Furnace
  - For near void free die attachment of high power dissipating devices (e.g., MOSFETs)
  - Uses Enables positive pressure and vacuum for die attach at temperatures up to 1000° C
  - Hydrogen furnace
  - Pressure furnace forces die down on solder
  - Vacuum to draw out voids
- Solder:
  - Sintered Silver
  - Gold Tin

Trim:
- Trim resistor values for thick film and thin film substrates
- Laser burns portions of resistors to increase resistance value
- Passive trim for high accuracy resistor tolerance
- Active trim for high accuracy voltage or current tolerance

Conductors:
- Conductor Materials
  - Gold
  - Platinum Gold
  - Palladium Gold
  - Platinum Palladium Gold
  - Silver
  - Platinum Silver
  - Palladium Silver
- Conductor Types
  - 5 mil Standard
  - Eutectic Attach
  - Solderable
  - Wire Bondable

Automated Test:
- Fully Automated Testing
- Test Engineers Involved with all Phases of Product Development
- VXI Test Stands
- Power Supplies, Voltmeters, Digitizing Oscilloscopes, Load Banks, etc.
- Hybrid-Specific Interface Test Adaptors (ITAs)
- PC Based Test Software

Design Tools

- Computer Aided Design (CAD)
- Thermal Models
- Mozaix - Schematic Capture
- Pantheon - PC Board Layout
- Spectra - PC Board AutoRouting
- Algor - Three-dimensional Conduction - cooled thermal analysis
- CFDesign - Air-cooled thermal analysis
- AutoCAD - Two-dimensional drawings
- SolidWorks - Three-dimensional mechanical drawings

Complete Info: www.ddc-web.com/Hybrids
Custom ASICs

Examples of ASICs

- MIL-STD-1553 Protocol/Memory Digital ASIC
- MIL-STD-1553 Radiation Tolerant Protocol ASIC
- Resolver-to-Digital Mixed Signal ASIC
- Resolver-to-Digital Converter
- ARINC 429 Line Driver

ASIC Capabilities

Unique Capabilities:
- Dedicated ASIC Design Team
- Experience in High Voltage Processes
- DO-254 and DO-178 Compliant
- Radiation Hard ASICs with High TID and SEE/SEU Immunity
- Experience in a wide range of processes including:
  - CMOS (down to 90nm)
  - BiCMOS
  - BCDMOS
  - HVIC

Core Expertise:
- Analog
- Digital
- Mixed Signal
- Power
- Radiation Tolerant/Space Grade
- RF
- Hybrid/MCM Packaging

Complete Info: www.ddc-web.com/ASICs

Design Complexity Experience:
- High transistor counts – up to 60,000
- High logic gate counts – up to 50,000
- High precision – 16-bit resolver-to-digital converters, with accuracies down to ±1 minute

Building Blocks:
- Linear Amplifiers
- OTAs
- Voltage References
- A/D and D/A Converters
- Oscillators
- Power Electronics

ASICs for DDC Standard Products:
- MIL-STD-1553
- ARINC 429
- Synchro/Resolver

Did You Know?

DDC’s RAD-PAK® Solutions have been used in space-qualified products in the space industry for over two decades, and has the following features:
- High Radiation Protection (TID 100krad for Typical Missions)
- RAD-PAK® Reduces the Number of Electrons and Protons Inside the Package (i.e., Less Total Dose on the Die)
- Up to 500x Improvement for GEO Missions
- Up to 10x Improvement for LEO Missions

Did You Know?

To help our customers save time and money when developing systems, DDC created a common API for our Test and Embedded cards.

This common API allows engineers to use the same program they have written for the hardware in their test application, with the hardware in their embedded application.

Additionally, DDC’s BusTRACE™ Graphical Monitor/Generator Software offers an Automated Source Code Generation feature, allowing you to output ANSI 'C' source code of your setup file in minutes. It will detect which board is connected and generate a C file for the appropriate SDK.
Space Level Capabilities

DDC has more than 30 years of experience in the design and manufacture of hybrids for space applications. This includes supplying MIL-STD-1553, motion feedback, and motor drive and controller hybrids for use on launch vehicles, satellites, deep space applications, and the International Space Station. In satisfying customers’ needs to achieve the highest levels of reliability, DDC is fully qualified to build, test and qualify our hybrid circuits in accordance with MIL-PRF-38534 for all classes including class K.

DDC can also screen to specific profiles, enabling customers to choose from a menu including element evaluation, particle impact noise detection (PIND) testing, 320 hour burn-in, 100% nondestructive wire bond pull, and/or radiographic (X-ray) analysis. Additionally, DDC Microelectronics, formerly Maxwell Technologies, offers radiation mitigation RAD-PAK® Technology. RAD-PAK® enables DDC to deliver reduced cost space grade solutions providing total dose immunity of 100 krads or higher utilizing standard commercial chips. RAD-PAK-based solutions have been qualified for use by NASA.

Materials and Components - Element Evaluation

Active Elements (every wafer lot):
- 100% high magnification visual
- 100% probe at room temperature
- Samples assembled and put through standard environmental screening, including burn-in and electrical at min, max, and room temperature
- Life Test
- Scanning electron microscope (SEM)
- Wire bond pull

Passive Elements (capacitors, resistors, inductors):
- 100% visual
- 100% electrical on select parameters at room temperature
- Sample assembled and screened, including voltage conditioning and full electrical at room temperature
- Wire bond pull

Hybrid Microcircuit 100% Testing:
- Non-destructive bond pull
- Internal visual inspection
- Temperature cycling 10 times from -65°C to +150°C
- Constant acceleration 3,000 G
- PIND 1% PDA on 5th run and under 25% total
- Burn-in 320 hours at +125°C, PDA 2% second half of burn in/ Burn-in 160 hours at +125°C, PDA 10%
- Seal (fine and gross)
- Full electrical test at min, max, and room temperature
- Radiography
- External visual
- Material Control
- Full lot traceability to individual wafer
- Lot homogeneity

DDC Quality Reference Documents & MIL-PRF-38534 Certifications

Commitment to Excellence:
- Certificates & Awards
- ISO 9001:2008 Certificate
- AS9100, Rev. C Certificate

MIL-PRF-38534 Certifications:
- Class K Certificate
- Class H, D, & G Certificate
- MIL-PRF-38534 Guidelines

Did You Know?

DDC’s Synchro Conversion Handbook was conceived in 1973 during a series of technical seminars. It was the first integrated reference source on synchro/resolver data converters.

The handbook serves as a practical tutorial and reference source, describing the theory of operation of data converter products, performance parameters, and design factors for typical applications.

Visit: www.ddc-web.com/synchrohandbook

Did You Know?

DDC has partnered with the following manufacturers to develop the highest quality products for our customers:

- Advanced Digital Logic
- ADLINK Technology Inc.
- Admotec
- AMCI
- AMREL
- Curtiss Wright
- Dynapar
- Getac
- Green Hills Software, Inc.
- LTN
- LynuxWorks
- Mercury Systems, Inc.
- National Instruments
- Neptune Mobile Devices
- Stratos Optical Technologies
- TE Connectivity
- Tresys
- VadaTech Inc.
- VersaLogic
- Wind River
DDC's Product Assurance team is dedicated to employing and maintaining a strong quality system in compliance with MIL-PRF-38534, AS9100, ISO 9001:2008, and to support the long life cycle requirements of aerospace and defense programs.

DDC has been granted certification by the Defense Logistics Agency, Land & Maritime (DLA) for manufacturing Class K, H, G and D hybrid products in accordance with MIL-PRF-38534. The Quality System, as outlined in DDC's Product Assurance Manual, assures product conformance to specified requirements through controlled processes and Quality Assurance planning. The Management Review process evaluates quality indicators to ensure that the Quality System continues to be suitable and effective.

Certifications & Qualifications:
- ISO-9001:2008
- AS9100 Rev. C
- EN9100 Compliant
- JIS Q9100 Compliant
- MIL-PRF-38534: Class D, G, H, and K Qualified
- Capability to Design to DO-254, DO-178, and DO-160

Life Cycle Management:
- Vendor Life Cycle Checks
  - Life Time Buy
  - Customer Notification prior to Obsolescence (goal is 2 years)
- Configuration Management
  - Class 1 for Standard Product
  - Class 2 Notification Available
- Generation-to-Generation Compatibility
- Use of In-House Intellectual Property
- Boeing Approval to D6-82479

Did You Know?
DDC now offers processor-based modules!

These systems provide a scalable, programmable, and portable platform to develop and test MIL-STD-1553 and ARINC 429 system applications via an Ethernet network... eliminating the need and cost of long cabling/wire runs from the test lab to the onboard 1553/429 interfaces under test.

See Data Bus Systems on pages 8 and 9.
Data Device Corporation (DDC) is a world leader in the design and manufacture of high-reliability Connectivity, Power and Control solutions for aerospace, defense, space, and industrial applications. With awards for quality, delivery and support, DDC has served these industries as a trusted resource for more than 50 years... providing proven solutions optimized for efficiency, reliability, and performance. Data Device Corporation brands include DDC, Beta Transformer Technology Corporation, National Hybrid Inc., North Hills Signal Processing Corporation, Pascall Electronics Ltd., and XCEL Power Systems Ltd. DDC is headquartered in Bohemia, NY and has manufacturing operations in New York, California, Mexico, and the United Kingdom.

Beta Transformer Technology Corporation, a subsidiary of DDC and leader in high reliability transformer, magnetic and cable assembly solutions for the aerospace, defense, and space industries, offers field proven transformer solutions for the most demanding industrial environments... extreme temperature, shock, vibration, dust, fluid, and radiation. Beta Transformer developed many of the world’s smallest transformers and inductors, and is recognized for superior quality and performance. Beta Transformer headquarters along with their main design and manufacturing operations are located in Bohemia, NY. Beta has expanded production capabilities through their manufacturing operations at Beta Transformer Mexico, S. DE R. L. DE C.V., located in Ensenada, Mexico, and North Hills Signal Processing Corporation in H. Matamoros Tamaulipas, Mexico, both subsidiaries of Beta Transformer Technology Corporation.

XCEL Power Systems and Pascall Electronics are divisions of DDC Electronics, Ltd., a subsidiary of Data Device Corporation. DDC Electronics, Ltd. specializes in the design and manufacture of power supply solutions for extreme environments. With over 30 years of experience in the defense, aerospace and industrial sectors, DDC Electronics is a trusted source for complete solutions in the design, development and manufacture of electronic power conversion products – from single converters to complex multi-function conversion systems. DDC Electronics products are the first choice for power with In-Flight Entertainment & Connectivity (IFEC) and defense systems. There are more than 170,000 Pascall power supply units installed on commercial aircraft. XCEL and Pascall power supply units are in service with Ground, Air and Naval forces across the world, powering state of the art electronic systems, and trusted by industry leaders to deliver reliable proven performance in some of the most challenging environments to be found anywhere. DDC Electronics, Ltd. headquarters, along with the XCEL Power Systems design operations and the Pascall Electronics factory are located in the UK.

DDC Microelectronics, a division of Data Device Corporation and formerly the space microelectronics division of Maxwell Technologies, is a leading developer and manufacturer of innovative, cost-effective, space-qualified microelectronics solutions for satellites and spacecraft. DDC Microelectronics has provided space-qualified radiation-tolerant and radiation-shielded products, including semiconductors and single-board computers, to the space industry for more than two decades. DDC radiation mitigated power modules, memory modules, and single board computers incorporate powerful commercial silicon for superior performance and high reliability in space applications. DDC Microelectronics specializes in understanding the radiation performance of commercial semiconductors, qualifying selected components for use in space, integrating them with proprietary radiation mitigation technologies, and manufacturing and screening these products in a DLA approved MIL-PRF-38534 facility, located in southern California.


Beta Transformer Technology Corporation (BTTC) and its subsidiaries are ISO 9001:2008 and AS 9100 Rev C certified. BTTC has been granted certification as a qualified source of transformers by the Defense Logistics Agency, Land & Maritime (DLA) and is listed on the QPL for products MIL-PRF 21038/27-01 through -31 Product Levels C, M and T.

DDC Electronics Ltd Headquarters and Pascall Electronics Ltd. Factory
Westbridge Business Park, Cothey Way
Ryde, Isle of Wight, PO33 1QT, UK
Tel: +44 (0) 1983 817300
www.pascall.co.uk

United Kingdom: DDC U.K., Ltd
James House, 27-35 London Road, Newbury,
Berkshire RG14 1JL, England
Tel: +44 1635 811140

XCEL Power Systems Ltd
Brunswick Road, Cobbs Wood Industrial Estate
Ashford, Kent, TN 23 1EH, UK
Tel: +44 (0) 1233 656800
www.xcelpower.com

DDC is the world leader in the design and manufacture of high reliability data
interface products, motion control, and solid-state power controllers for
aerospace, defense, and industrial automation.