

# DuraCOR 830

Rugged Small Form-Factor Tactical Mission Computer  
w/ Intel Atom Processor & Optional MIL-STD-1553

- Small Form Factor: < 4 lbs.
- 2x PC104+ Expansion Slots
- 1.6 GHz Intel Atom Z530, 2GB RAM
- Dual Solid State Disks
- Designed to MIL-STD-810, 461, 704
- -40°C to +71°C Fanless Operating Temp
- 2x DDC MIL-STD-1553 Controllers
- 1x Gigabit Ethernet Interface
- Optional SAASM GPS receiver



## FEATURES

**LOW-POWER CPU:** Intel Atom Z530 Processor, 1.6 GHz Clockspeed

**DUAL FLASH STORAGE:**

- CompactFlash Solid State Disk, 16 GB, Removable (Linux / Windows Embedded Pre-loaded) and Solid State Disk, 8 GB, Fixed

**CONNECTIVITY & I/O:**

- 1x Gigabit Ethernet 10/100/1000 Mbps
- 3x USB 2.0, 2x RS-232 Serial
- Analog VGA, Stereo Audio, Keyboard, Mouse, DIO
- 2x Dual-Redundant MIL-STD-1553 (Optional)
- Other I/O Configurations by Special Order
- Optional L1/L2 GPS frequency tracking

**EXPANDABLE:**

- Up to 2x Open PC/104-Plus Slots for Expansion Cards
- Up to 101 Spare Connector Pins for Application-Specific I/O

**SMALL FORM FACTOR:**

- Lightweight Metal Chassis: <4 lbs (1.82 kg)
- Approx. 3.9" x 4.6" x 8.7" in Size (HxWxL) w/ connector & baseplate

**RUGGED MECHANICALS:**

- Sealed Metal Chassis w/ Hardened Finish & Mounting Flanges Designed to be Water Tight
- Circular MIL-DTL-38999 Connectors

**VEHICLE POWER SUPPLY:**

- MIL-STD-704E, MIL-STD-1275D Compliant
- DC Voltage/Surge Protection and Filtering

**MIL-STD DESIGN** (Qualification Testing Pending):

- MIL-STD-810G: Shock, Vibe, Temp, Altitude, Humidity
- MIL-STD-461F: Radiated & Conducted Emissions & Susceptibility
- 24/28V MIL-STD-704E & 1275D Power Supply

The DuraCOR® 830 is a rugged tactical mission processor based on the ultra low-power 1.6Ghz Intel Atom CPU, optimally designed for Size, Weight, and Power (SWaP)-constrained military / aerospace vehicle and aircraft installations. Mechanically compact (<4" tall, <4lbs heavy), this small form-factor computer subsystem integrates Gigabit Ethernet and dual MIL-STD-1553 (optional) connectivity, along with digital I/O and standard PC interfaces, including analog video, audio, 3x USB, 2x RS-232 serial, keyboard, and mouse. For application flexibility, the unit comes with a removable 16 GB CompactFlash disk pre-loaded with a Linux or Windows Embedded operating system and an 8GB industrial solid state disk (SSD) for additional file storage.

Designed for avionics and ground vehicle platforms to enhance situational awareness and computational capabilities, the DuraCOR 830 delivers processing and multimedia performance similar to Pentium M-based DuraCOR solutions, but with less power consumption, double the RAM memory capacity, and dual Flash SSDs. The system is also equipped with a 28V power supply compliant with MIL-STD-1275 and MIL-STD-704 voltages, spikes, and surges. The unit is based on a modular PC/104-Plus architecture with up to two (2) open card slots and over 100 spare connector pins for I/O expansion, making it possible to special order with customer-specific I/O configurations.

The DuraCOR 830 is designed for use under extended temperature (-40 to +71C) and other demanding MIL-STD-810G environmental conditions (thermal, shock, vibration, altitude, humidity). Its conductively cooled, sealed aluminum chassis incorporates protection from water and dust ingress, as well as MIL-STD-461F emissions and susceptibility. Power and system I/O signals are brought out through lightweight, high-density MIL-38999 connectors, making the product an ideal solution for a variety of unmanned and manned command and control (C2) applications.

Professional services are available to deliver special order/custom configurations with desired I/O pre-integrated (i.e. more MIL-1553 Channels, RS-232/422/485 Async Serial Ports, SAASM/civil GPS Receiver, MPEG-4 Encoder, etc.). Contact Parvus sales for more information.

# DuraCOR 830

## Specifications



Data Device Corporation MIL-STD-1553 Databus Controller Card Option



Removable CompactFlash



Supports CPU, Power Supply + 2 I/O Cards

APPLICATIONS	<ul style="list-style-type: none"> <li>(Un)manned Vehicle / Aircraft Server</li> <li>Command and Control (C2) On the Move</li> <li>Civil / Military Mobile Rugged Computing</li> <li>4ISR Situational Awareness</li> <li>Technology Refresh / Retrofit / LRU</li> </ul>
LOW POWER X86 PROCESSOR	<ul style="list-style-type: none"> <li>Intel Atom Z530 (Menlow), 512K L2 Cache, 32-Bit Instruction Set, 45 Nanometer</li> <li>1.6GHz Clockspeed w/Support for Hyper-threading, Speed-Step, Virtualization</li> </ul>
RAM MEMORY	<ul style="list-style-type: none"> <li>2048 MB DDR2-SODIMM</li> </ul>
SOLID STATE DISK	<ul style="list-style-type: none"> <li>8 GB Non-Volatile NAND Flash Integrated onto Single Board Computer</li> <li>16 GB Non-Volatile CompactFlash w/ Ultra DMA Support: Access Panel On Top for Removal of CompactFlash Disk</li> </ul>
OPERATING SYSTEM	<ul style="list-style-type: none"> <li>Pre-installed Linux, Windows 7 or Windows Embedded image (eval license)</li> <li>Hardware Compatible with x86 Embedded / Real-Time Operating Systems (Windows Embedded, Linux, QNX, VxWorks)</li> </ul>
BOARD ARCHITECTURE	<ul style="list-style-type: none"> <li>Compliant with PC/104-Plus Standard (PCI/ISA Bus)</li> </ul>
NETWORK	<ul style="list-style-type: none"> <li>1x Gigabit Ethernet Network Interface (10/100/1000 Mbps)</li> </ul>
MIL-STD-1553	<ul style="list-style-type: none"> <li>2x Dual Redundant MIL-STD-1553 Ports (1553 A/B, 1760), Bus Controller (BC)/Remote Terminal (RT)/Bus Monitor (MT) modes, Data Device Corporation PC/104-Plus Card (select models)</li> </ul>
SERIAL	<ul style="list-style-type: none"> <li>2x EIA RS232 Serial Ports, 115Kbps Max</li> </ul>
USB	<ul style="list-style-type: none"> <li>3x USB 2.0 Ports</li> </ul>
VIDEO	<ul style="list-style-type: none"> <li>VGA Analog Video Output (up to 1600x1200 pixels)</li> </ul>
AUDIO	<ul style="list-style-type: none"> <li>Stereo Audio Channels - Six Monaural Audio I/O Lines</li> </ul>
PS2	<ul style="list-style-type: none"> <li>PS2 Keyboard and Mouse Ports</li> </ul>
DIO	<ul style="list-style-type: none"> <li>Eight General-Purpose Digital I/O (GPDI/O) lines - 4 Parallel Port Control Lines, 4 Parallel Port Data Lines; Capable of Sinking/Sourcing 12mA</li> </ul>
EXPANSION I/O SUPPORT	<ul style="list-style-type: none"> <li>Two Expansion Slots for PC104, PC104+, PCI-104 + I/O or Comm Boards (1 slot with DDC 1553 card installed) to Meet Application-Specific I/O Requirements</li> <li>Up to 101 Spare Pins Available on Connectors for Application-Specific I/O (only 93 Pins with 1553 Card Installed): 79-Pin Expansion Connector + 22 Spare Pins on System I/O Connector (14 pins if MIL-1553 card is installed)</li> </ul>
POWER	<ul style="list-style-type: none"> <li>28V Nominal Power Input Voltage (18-33VDC Range Continuous)</li> <li>Reverse, Over Voltage, 250V Spike, 100V Surge-Protected</li> <li>MIL-STD-704E and MIL-STD-1275D Compliance</li> <li>-19 W Power Dissipation (max) with 1553; -16 W max (without 1553); 2W max additional for optional SASSM GPS Receiver</li> <li>Ground: Grounding Lug for Connection to System Chassis Ground</li> <li>Battery for Real-Time Clock Maintains Time/Day for -30 Days</li> </ul>
ENVIRONMENTAL	<ul style="list-style-type: none"> <li>Designed to Meet MIL-STD-810G: (Formal Qualification Testing Pending)</li> <li>Operating Temperature: -40 to +71C (-40°F to +160°F) Ambient</li> <li>Storage Temperature: -40°C to +85°C (-40°F to +185°F)</li> <li>Operating Shock: 40g, 11ms, 3 pos/neg per axis, 18 terminal peak sawtooth pulses (MIL-STD-810G, Method 516)</li> <li>Crash Safety Shock: 75g, 11ms, 2 pos/neg per axis, total 12 sawtooth pulses</li> <li>Random Vibration: 3 Axes, 1 Hour/Axis (MIL-STD-810G, Method 514, per Jet- Helo and Ground Mobile Vehicle Profiles)</li> <li>Humidity: Up to 95% RH @ 40C, Non-Condensing (Conformal Coated)</li> <li>Water Immersion: 1 Meter Submersion, 30 Minutes (Similar to IP67)</li> <li>Dust Ingress: Designed for Compliance w/Method 510.4, No Dust Ingress</li> <li>Operating Altitude: Up to 30,000ft (9,144 meters); Thermal De-rating May Apply</li> <li>Storage Altitude: Sea Level to 60,000 ft (18,288 meters)</li> <li>Rapid Decompression: 8,000 to 40,000 ft (2,438 to 12,192 meters)</li> </ul>
PHYSICAL	<ul style="list-style-type: none"> <li>Weight: &lt;4 lbs (1.82 kg)</li> <li>Dimensions (H x W x L): 3.88" (99.55 mm) x 4.60" (116.84 mm) x 8.71" (221.11 mm) - Including Connectors and Mounting Plate</li> <li>Chassis: Aluminium Alloy, Corrosion Resistant</li> <li>Connectors: MIL-DTL-38999</li> <li>Installation: Flange Mount Baseplate</li> <li>Finish: Anodized per MIL-A-8625, Type III, Class 2</li> <li>Cooling: No Moving Parts. Passive Conductive Cooling</li> </ul>
EMI/EMC ISOLATION	<ul style="list-style-type: none"> <li>Designed to meet MIL-STD-461F (Qualification Testing Pending):</li> <li>CE102, Power Leads, 10 KHz to 10MHz, basic curve</li> <li>CS101, Power Leads, 30 Hz to 150 KHz, curve 2 (28V and below)</li> <li>RE102, Electric Field, 10 KHz to 18 GHz, figure 3</li> <li>RS103, Electric Field, 30 MHz to 18 GHz</li> </ul>
MTBF	<ul style="list-style-type: none"> <li>Per MIL-HDBK-217 @ 71C (Estimated):</li> <li>- 40,000 hours - Airborne Inhabited Fighter / Ground Mobile</li> <li>- 120,000 hours - Ground Benign</li> </ul>
WARRANTY	<ul style="list-style-type: none"> <li>1 Year RTF Warranty (Extended Service Contracts Available)</li> </ul>
ACCESSORIES	<ul style="list-style-type: none"> <li>Breakout Starter Cableset from 38999 to PC-style connectors (for lab use)</li> </ul>

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