DuraCOR 820-A
Small Form-Factor Tactical Mission Computer with Intel Atom Processor, Optional MIL-STD-1553

Features

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

STORAGE
- Integrated Solid State Disk, 4 GB
- CompactFlash Solid State Disk, 16 GB

CONNECTIVITY & I/O:
- 1x Gigabit Ethernet 10/100/1000 Mbps
- 3x USB 2.0, 2x RS-232 Serial
- Analog VGA, Keyboard, Mouse, DIO
- 1x Channel DDC MIL-STD-1553 (Optional)
- Other I/O Configurations by Special Order

SMALL FORM FACTOR:
- Lightweight Metal Chassis: ~3 lbs (<1.36 kg)
- Approx. 7" x 4" x 3" in Size

MECHANICAL:
- Sealed Metal Chassis with Hardened Finish & Mounting Flanges Designed to be Water Tight
- High Density MIL-DTL-38999-like Connectors

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

MIL-STD DESIGN (Qualification Testing Pending):
- MIL-STD-810F: Shock, Vibration, Temperature, Altitude, Humidity (Designed to Meet)
- MIL-STD-461E: Radiated and Conducted Emissions & Susceptibility (Designed to Meet)
- 24/28V MIL-STD-704E & 1275D Power Supply

OPERATING SYSTEM:
- Pre-loaded Linux or Windows Embedded Eval to Boot-up Out of Box

APPLICATIONS
- (Un)manned Vehicle / Aircraft Server
- Command and Control (C2) On the Move
- Civil / Military Mobile Rugged Computing
- C4ISR Situational Awareness
- Technology Refresh / Retrofit / LRU

The DuraCOR® 820-A 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 (~ 3.0" tall, ~3lbs weight), this small form-factor computer subsystem integrates Gigabit Ethernet and MIL-STD-1553 (optional) connectivity, along with digital I/O and standard PC interfaces, including analog video, 3x USB, 2x RS-232 serial, keyboard, and mouse. For application flexibility, the unit comes with a 4GB industrial solid state disk (SSD) pre-loaded with a Linux or Windows Embedded operating system, as well as a 16 GB CompactFlash disk for file storage.

Designed for avionics and ground vehicle platforms to enhance situational awareness and computational capabilities, the DuraCOR 820-A delivers processing and multimedia performance comparable (or better) 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 high efficiency power supply compliant with MIL-STD-1275 and MIL-STD-704 voltages, spikes, and surges.

The DuraCOR 820-A is designed for use under extended temperature (-40 to +71C) and other demanding MIL-STD-810F environmental conditions (thermal, shock, vibration, altitude, humidity). Its conductively cooled, sealed aluminium chassis incorporates protection from water and dust ingress, as well as MIL-STD-461E emissions and susceptibility. Power and system I/O signals are brought out through lightweight, high-density MIL-38999-like connectors, making the product an ideal solution for a variety of unmanned and manned command and control (C2) applications.

The unit is based on a modular PC/104-Plus architecture, making it possible to special order with customer-specific I/O configurations, determined by the available connector pinouts.

Parvus

Specifications

	LOW POWER X86 PROCESSOR	• Intel Atom Z530 (Menlow), 512K L2 Cache, 32-Bit Instruction Set, 45 Nanometer • 1.6GHz Clockspeed w/Support for Intel Hyper-threading, Speed-Step, Virtualization
	RAM MEMORY	• 2048 MB DDR2-SODIMM
	SOLID STATE DISK	• 4 GB Non-Volatile NAND Flash Integrated onto Single Board Computer • 16 GB Non-Volatile CompactFlash w/ Ultra DMA Support (Capacity Upgrades Available to ~32GB)
	OPERATING SYSTEM	• Pre-installed Linux or Windows Embedded image (120 day eval license) • Hardware compatible with all x86 embedded and real-time operating systems (Windows XPe, WinCE, Linux, QNX, VxWorks)
	BOARD ARCHITECTURE	• Compliant with PC/104-Plus Standard (PCI/ISA Bus)
	NETWORK	• 1x Gigabit Ethernet Network Interface (10/100/1000 Mbps)
	MIL-STD-1553	• 1x MIL-STD-1553 Port, DDC BC/RT/MT Architecture (select models)
	SERIAL	• 2x EIA RS232 Serial Ports, 115Kbps Max
	USB	• 3x USB 2.0 Ports
	VIDEO	• VGA Analog Video Output (up to 1600x1200 pixels)
	PS2	• PS2 Keyboard and Mouse Ports
	DIO	• Eight General-Purpose Digital I/O (GPDIO) lines - 4 Parallel Port Control Lines, 4 Parallel Port Data Lines; Capable of Sinking/Sourcing 12mA
	POWER	• 28V Nominal Power Input Voltage (18-33VDC Range Continuous) • Reverse, Over Voltage, 250V Spike, 100V Surge-Protected • MIL-STD-704E and MIL-STD-1275D Compliance • ~19 W Power Dissipation (max) with 1553; ~16 W max (without 1553) • Ground: Grounding Lug for Connection to System Chassis Ground • Battery for Real-Time Clock Maintains Time/Day for ~30 Days
	ENVIRONMENTAL	Designed to Meet MIL-STD-810F: (Qualification Testing Pending) • Operating Temperature: -40 to +71C (-40ºF to +160ºF) Ambient • Storage Temperature: -40ºC to +85ºC (-40ºF to +185ºF) • Operating Shock: 20g, 15ms, 3 pos/neg per axis, total 18 sawtooth pulses • Crash Safety Shock: 40g, 11ms, 2 pos/neg per axis, total 12 sawtooth pulses • Random Vibration: 0.022-G²/10-Hz to 0.0026-G²/2000-Hz • Humidity: Up to 95% RH @ 40C, Non-Condensing (Conformal Coated) • Water Immersion: 1 Meter Submersion, 30 Minutes (Similar to IP67) • Dust Ingress: Designed for Compliance w/Method 510.4, No Dust Ingress • Altitude: Up to 60,000 feet (18,288 meters), Thermal De-rating May Apply
	PHYSICAL	• Weight: ~3 lbs (<1.36 kg) • Dimensions (H x W x L): 3.04" (77.22 mm) x 4.30"(109.22 mm) x 7.08" (179.83 mm) - Including Connectors and Baseplate • Chassis: Aluminium Alloy, Corrosion Resistant • Connectors: Glenair Series 801 Mighty Mouse (MIL-38999-like) • Installation: Flange Mount Baseplate • Finish: Anodized per MIL-A-8625, Type III, Class 2 • Cooling: No Moving Parts. Passive Conductive Cooling
	EMI/EMC ISOLATION	Designed to meet MIL-STD-461E: • CE102, Power Leads, 10 KHz to 10MHz, basic curve • CS101, Power Leads, 30 Hz to 150 KHz, curve 2 (28V and below) • RE102, Electric Field, 10 KHz to 18 GHz, figure 3 • RS103, Electric Field, 30 MHz to 18 GHz
	MTBF	Per MIL-HDBK-217 @ 71C: ~ 40,000 hours – Airborne Inhabited Fighter / Ground Mobile ~120,000 hours – Ground Benign
	WARRANTY	1 Year RTF Warranty (Extended Service Contracts Available)
	ACCESSORIES	• Breakout Starter Cableset from 801 Series to PC-style connectors (for lab use)
	EXPANSION / SPECIAL ORDER OPTIONS	• One PC104(+) Expansion Slot for I/O / Comm Module (if MIL-STD-1553 Card Not Populated), Limited to Spare Pin-Count on Connectors without Mechanical Changes • Special Order / Custom Configurations Possible (e.g. up to 4 MIL-STD-1553 Channels, Additional RS-232/422/485 Asynchronous Serial Ports, GPS Receiver). Consult Sales@parvus.com for more information

EUROTECH

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