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Find the *Curtiss-Wright VPX6-185-A01A6* at our website: *Click HERE*



Fact Sheet

VPX6-185

Freescale Power Architecture™ MPC8640/1-based Single Board Computer



Curtiss-Wright Controls Defense Solutions' VPX6-185 combines the performance and the advanced I/O capabilities of the Freescale Power Architecture MPC8640/1 processor with an extensive I/O complement to provide a highly capable processing platform for a wide range of harsh environment embedded applications

The VPX6-185's integral high-speed backplane and PMC/XMC connectivity allows for multi-GB/s data flows from board-to-board through the backplane interface, from backplane to PMC/XMC site, and between PMX/XMC sites supporting the acquisition, processing, and distribution of sensor data such as video, radar, and sonar data. A rich I/O complement including 4GbE ports and options for multi-function EIA-232/422/485 serial ports, MIL-STD-1553, SCSI, Serial ATA (SATA), TTL and differential discretes provides connectivity integration with other system elements without using up PMC/XMC sites.

The VPX6-185 is supported by a wealth of software including Curtiss-Wright standard CSA firmware, multiple BSPs and Driver Suite, MIL-STD-1553 software driver, and SSSL signal processing library.

- Powerful general-purpose Single Board Computer (SBC) with Freescale Power Architecture MPC8640/1 Processor
- Single or dual e600 cores at up to 1.33GHz
- Up to 2GB DDR2 SDRAM controlled by dual 64-bit controller
- Full complement of I/O capability (Ethernet, SCSI, serial, USB 2.0, MIL-STD-1553, Serial ATA, TTL and differential discretes...,)
- VPX/VPX-REDI formats with four 4-lane fabric ports, port selectabilty between either Serial RapidIO® (SRIO) or PCI Express® (PCIe)
- VxWorks® 6.x BSP and Driver Suite supporting Workbench® 2.x IDE, Wind River® Linux® GPP from Curtiss-Wright, INTEGRITY® available from Green Hills®, LynxOS® 5.0 available from LynuxWorks®
- Continuum Software Architecture (CSA) firmware providing a comprehensive suite of system debug, exerciser, and update functions, Built-in Test (BIT), and non-volatile memory sanitization function
- Designed for harsh environment applications, both air- and conduction-cooled
- First VPX version of Curtiss-Wright popular 17x and 18x series of SBCs

Features

- MPC8640/1 processor with one or two e600 cores up to 1.33GHz, each core with:
  - 64KB L1 cache
  - 1MB internal L2 cache
  - AltiVec™ vector unit
- Two independent 64-bit DDR2 SDRAM controllers integrated into the MPC8640/1 processor
- 1 or 2GB of DDR2 SDRAM with ECC
- 256 or 512MB of contiguous direct-mapped FLASH memory
  - Hardware FLASH write protection jumper
- Permanent Alternate Boot Site (PABS) provides back-up boot capability
- 128KB AutoStore nvSRAM
- Four serial fabric ports on the VPX P1 connector
  - Two ports are fixed for SRIO, and two can be selected as PCIe or SRIO

VPX™ VPX REDI™ OpenVPX™

Learn More
Sales Info: cwcdefense.com/sales
Sales Email: defensesales@curtisswright.com

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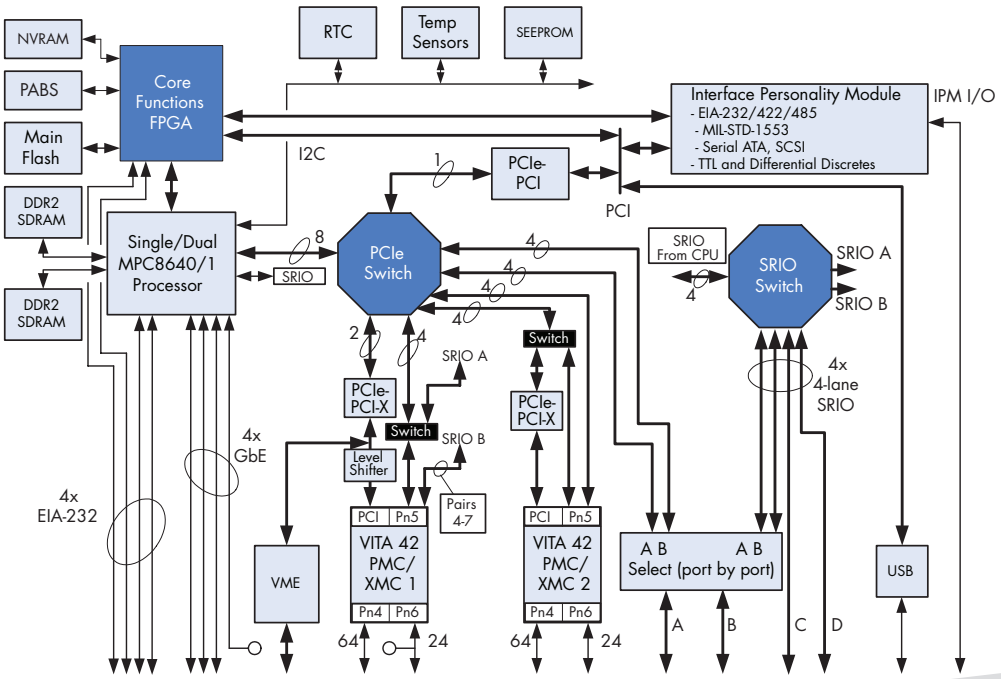
Fact Sheet

VPX6-185

Features continued

- Two PMC/XMC (VITA 42.3) sites on independent PCI and PCIe busses
- PMC/XMC site #1:
  - Provides either a 66MHz PCI-X capable interface via 2-lane PCI-to-PCIe bridge or 4-lane PCIe interface, auto-selected
  - 4-lane link to on-board SRIO switch on pairs four to seven of Pn5 connector
  - 64-bits of I/O through Pn4 connector and 24-bits through Pn6 connectors mapped per VITA 46.9, for which the routing to the backplane is done via controlled-impedance and controlled-length pairs
- PMC/XMC site #2:
  - Provides either a 100MHz PCI-X capable interface via 4-lane PCI-to-PCIe bridge or 8-lane PCIe interface, auto-selected
  - 64-bits of I/O through Pn4 connector and 24-bits through Pn6 connectors mapped per VITA 46.9, for which the routing to the backplane is done via controlled-impedance and controlled-length pairs
- Conduction-cooling of PMC/XMC sites optimized with secondary thermal interfaces and mid-plane thermal shunt
- Four Gigabit Ethernet interfaces:
  - Three to rear-panel connectors and one to front panel connector on air-cooled cards
  - Up to four to rear-panel connectors on conduction-cooled cards
- Four asynchronous EIA-232 serial ports
- Two USB 2.0 ports
- Four general-purpose 32-bit user timers provided by Core Functions FPGA
- Four general-purpose DMA controllers provided by the MPC8640/1
- Two avionics-style watchdog timers with external watchdog event indicator discrete
- Real-time Clock (RTC) with automatic switch over from 5V to 3.3V_AUX
- Four on-board temperature sensors, with alarm interrupts
- Red Fail LED and two green user LEDs
- +5V-only operation
- Circuit card assembly is done to Class 3 standards of IPC-A-610C, Acceptability of Electronic Assemblies
- Standard conformal coating is acrylic
- Factory-installed Interface Personality Module (IPM) allows for choice of following I/O bundles:
  - Four EIA-232/422/485 serial channels and 14 LVTTL discretes
  - 8-bit SCSI, 2 EIA-232/422/485 serial channels, and 14 LVTTL discretes
  - 16-bit SCSI, one EIA-232/422/485 serial channel, and 14 LVTTL discretes
  - Two MIL-STD-1553 channels, two EIA-232/422/485 serial channels, and 14 LVTTL discretes
  - Two EIA-232/422/485 serial channels, 14 LVTTL discretes, two SATA ports, single MIL-STD-1553
  - Each LVTTL discrete software-configurable as input or output, with interrupt capability as inputs
  - Each EIA-232/422/485 serial channel has full DMA support
  - Each serial signal software-configurable as discrete I/O, with interrupt capability on inputs
- 2eSST-capable (VME320) VME interface
- Power management features
- Available in a range of ruggedization levels
  - Air- and conduction-cooled per VITA 46.0 (.8" pitch)
  - Conduction-cooled per VITA 48.2, Type 1 card (.85" pitch with top and bottom covers, compatible with 1.0" pitch usage)
- CSA firmware providing a comprehensive suite of system debug, exerciser, and update functions, BIT, and non-volatile memory sanitization function
- Available software packages
  - VxWorks 6.x BSP and Driver Suite supporting Workbench 2.x IDE
  - VxWorks 6.x MIL-STD-1553 Driver
  - Wind River Linux from Curtiss-Wright
  - INTEGRITY available from Green Hills
  - LynxOS 5.0 available from LynuxWorks
  - Continuum Vector™ AltiVec-optimized signal processing library
  - Inter-processor communications library for backplane connectivity over SRIO
- PWB meets UL 94 V-0 flammability rating

Figure 1: VPX6-185 Block Diagram



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