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VIPC860-BP

6U VME Bus Single Board Computer with Four IndustryPack Sites and Back-Panel I/O

Application Information

The VIPC860-BP combines the performance of the Motorola PowerPC Quad Integrated Communications Controller (PowerQUICC) and the flexibility of IndustryPack mezzanine modules into a single-board, single-slot 6U VME solution. It is designed for high end embedded applications with a mix of I/O requirements. The VIPC860-BP features powerful PowerQUICC, four modular IndustryPack sites, a high performance 10/100BaseT Fast Ethernet port, and four high speed serial ports.

The board has two variants. The front-panel version (VIPC860-FP) has VME32 bus connectors. It routes IndustryPack I/O through front panel Champ50 connectors and serial ports through the VME bus P2. The back panel version (VIPC860-BP) has IndustryPack I/O routed through the backplane via VME64 connectors P0 and P2 and serial ports through front-panel Champ50 connectors.

The VIPC860-BP includes 4 MB of non-volatile Flash memory as boot code and 16 MB of EDO DRAM for PowerQUICC code and communications data. DRAM is dual ported to the VMEbus. Flash memory may be accessed from the VME bus while the CPU is held reset.

The VIPC860-BP can be run as master or slave in a VMEbus system and provides access to A32/A24/A16 : D32/D16/D8 (OE) address spaces. 64-bit transfers are not supported.

The four IndustryPack sites are independent of each other. Each site can be programmed to either 8 or 32 MHz per IP Specification VITA 4-1995. IndustryPack sites are accessible by the PowerQUICC only. Industry pack I/O is available via the VME P0 and P2 connectors.

The MPC860T built-in Fast Ethernet port is compliant with the IEEE 802.3 specification for 10 Mbps and 100 Mbps connectivity. Physical connection is provided through the front panel RJ-45 connector. Full-duplex 100 Mbps is supported at the system clock rate of 50 MHz.

Four PowerQUICC serial communication controllers are available for the following signals: RXD, TXD, RCLK, TCLK (bidirectional), RTS, CTS, DTR, and CD. The ports are available on the front panel via Champ50 connectors. Each port is programmable as EIA-232/422/449, V.35, V.36 and X.21. The serial ports support a wide range of data communications protocols available for PowerQUICC, including UART, HDLC, SDLC, BISYNC, DCMP, SS7, and X.25.

Two PowerQUICC serial management channels (SMCs) are available for the following signals: TXD and RXD as EIA-232. Physical connection is provided through the front panel RJ-45 connector and an in-board 2x5 header. These channels are simple EIA-232 UARTs generally used to provide low-speed tasks such as debugging and system monitoring.

A background debug mode (BDM) port is available on-board to facilitate software development. Additionally, front panel LED indicators provide diagnosis for CPU RUN, IndustryPack access, VME master and slave access, and Ethernet activity.

SBS Technologies also offers a Board Support Package (BSP) for the popular VxWorks operating system. For other operating system support, please contact the factory for availability and third party support information.

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Specifications

Form Factor	6U VME64
Processor	Motorola MPC860T (Power QUICC) at 50 MHz
DRAM	16 MB EDO Hyper Page, 32-Bit @ One wait state, no parity
Flash Memory	4 MB 32-Bit @ Three wait states
EEPROM	4 Kbit serial catalyst 93C66
Time-of-day Clock	Provided by MPC860T. Battery-backed if battery fitted
Battery	Lithium coin, 3.0V @ 850 mAh. Minimum 10 year operation
Interrupts	VMEbus interrupt to MPC860T on IRQ0-IRQ6 VIPC860 to VMEbus on IRQ1-IRQ7 Mailbox from VMEbus on IRQ1-IRQ6 IndustryPack sites A to D independently programmable to MPC860T on IRQ0 through IRQ6.
Front Panel I/O Access	SMC1 EIA-232 (RJ-45) Ethernet IEEE 802.3 10BaseT/100BaseTx (RJ-45) SCC1 through SCC4 physical layer interface by EIA-232/422/449, V.35, V.36, X.21 via Champ50 connectors
On-board I/O Access	SMC2 EIA-232 (2 by 5 pin header) SCC1 through SCC4 physical layer interface by EIA-232 only (four 2 by 5 pin headers)
Back Panel I/O Access	IndustryPack Slots A through D I/O via VMEBus P0/P2 user I/O pins
VMEBus Interface	Conforms to ANSI/IEEE STD1014-1987. Master and slave. A32/A24/A16:D16/32/D08 (OE); Interrupt handler at all levels; Mailbox Interrupt; System Controller: Timeout, Reset, Single level Arbit -- fixed priority, SYSCLK, BBSY low pass digital filter.
Number of IndustryPack Sites	Four
IndustryPack Site Comformance	VITA-4 1995 Independently configurable to 8 or 32 MHz Software IndustryPack bus reset 32-bit interface and IndustryPack DMA are not supported.
Dimensions	160 mm x 233.35 mm
Weight	0.65 lb (0.30 kg)
Power Requirements	+5 VDC, 1200 mA max (800 mA typical) +12 VDC, 10 mA max (7 mA typical) -12 VDC, 10 mA max (7 mA typical) Additional power is consumed by IndustryPack modules
Fuses	+5 VDC: Two parallel 2A resettable +12 VDC: 2A resettable -12 VDC: 2A resettable
Environmental	Operating temperature: 0 to 70°C Humidity: 5 to 95% non-condensing Storage: –40 to +85°C

Compatability

The VIPC860-BP is compatible with the XM-664-60, XM-664-61, and XM-664-80 transition modules. It is not compatible with the XM-860-1 transition module.

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Order Information

VIPC860-BP	6U VME MPC860T Single Board Computer with Four IndustryPack Sites Industrypack I/O is via the back panel
EK-VIPC860-BP	Engineering Kit for VIPC860-BP. Contains: Printed hardware user manual Rear-panel transition module with ribbon headers (XM-664-60) Six foot fifty conductor ribbon cable (C-IP50F-IP50F-6) Fifty screw terminal block with ribbon header (IP-TERM) Six foot serial cable Champ50 male to DB25 male (C-CM50M-DB25M) Six foot serial cable (C-D9M-P10F) Six foot cable Champ50 male to HD50 male (C-HD50M-CM50M) Fifty screw terminal block with HD50 female (IP-TERM-HD50) Six foot serial cable RJ-45 to DB25 male (C-860-1) DB25 to DB9 adaptor (A-D9M-D25F) Null modem (NULL-MODEM) Floppy disk containing: VxWorks Boot Flash memory binary image BDM support files Bill of Materials Board Schematics Assembly Diagram Data Sheet Package. Contains: MPC860 CPU User Manual MPC860T Fast Ethernet Supplement AM29F800B Flash Memory data sheet Nat Semi DP83843 Fast Ethernet transceiver data sheet Liner Tech LTC1344, LTC1543, LTC1544 data sheets ATMEL AT93C46/56/57/66 data sheet
VB-VIPC860	VxWorks 5.3 Board Support Package for VIPC860

Associated Products

VIPC860-FP	6U VME MPC860T Single Board Computer with Four IndustryPack Sites IndustryPack I/O is via the front panel
C-CM50M-DB25M	Six foot serial cable Champ50 male to DB25 male
C-D9M-P10F	Six foot serial cable DB9 male to 10 pin ribbon header
C-860-1	Six foot serial cable RJ-45 to DB25 male for VIPC860 front panel SMC1
XM-664-60	Transition module for VIPC860-BP IndustryPack I/O with ribbon headers
XM-664-61	Transition module for VIPC860-BP IndustryPack I/O with ribbon headers and wire-wrap pins for I/O configuration
XM-664-80	Transition module for VIPC860-BP IndustryPack I/O with ribbon headers and IEEE1101.11 rear panel
C-IP50F-IP50F-3	Three foot 50-conductor ribbon cable
C-IP50F-IP50F-6	Six foot 50-conductor ribbon cable
C-HD50M-CM50M	Six foot cable Champ50 to HD50
IP-TERM	Fifty screw terminal block with ribbon header
IP-TERM-HD50	Fifty screw terminal block with HD50 female
A-D9M-D25F	DB25 to DB9 serial port adaptor
NULL-MODEM	DB25 serial port NULL modem adaptor

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