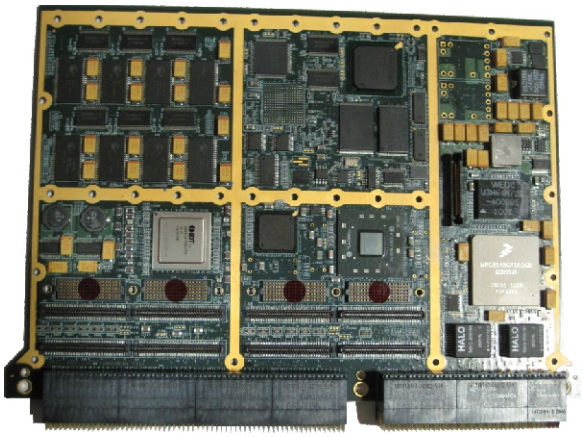
AT-VPX-SBC-MPC8548

VPX SBC with MultiProtocol Interface



- **Freescale MPC8548 PowerQUICC III processor**
- **Embedded PowerPC e500 core at 1.0 Ghz**
- **6U card on VPX backplane**
- **1 GB of DDR2 SDRAM with ECC**
- **NOR Flash Memory - Up to 128 MB**
- **NAND Flash Memory - Up to 8 GB**
- **16 KB Serial EEPROM**
- **16 MB NVRAM**
- **Two Gigabit Ethernet ports**
- **Two configurable RS232 / RS422 serial port**
- **Dual PMC / XMC mezzanine sites**
- **x4 lane PCI express interface at 2.5 Gbps data rate per lane**
- **x4 lane SRIO interface at 2.5 Gbps data rate per lane**
- **User Configurable 8 pairs- LVDS I/O**
- **Real time clock**
- **Watchdog timer**
- **Four temperature sensors**
- **Voltage monitoring**
- **Multi board Synchronous clock**
- **Debug port**
- **Linux, VxWorks OS available**

OVERVIEW

Freescale's MPC8548E next-generation Power QUICC III processor integrates the enhanced e500 PowerPC core and advanced features such as DDR2 SDRAM with 1GB, 128 MB of NOR flash, 8GB of NAND Flash, Four 64KB configuration EEPROM, up to 1 GHz of clock speed, up to 16MB of NVRAM, single X4 lane PCI Express and x4 lane SRIO interface, 8 pairs LVDS I/O, and four temperature sensors. The system provides the required interfaces to interface custom modules in the system. The system provides communication bus interfaces like asynchronous communication ports on RS232/422 and two-gigabit Ethernet ports. The SBC also features a watchdog timer, Real Time Clock and comes equipped with Dual PMC / XMC mezzanine sites.

DESCRIPTION

Central Processing Unit

The Motorola PowerPC MPC8548 series of processors deliver unmatched computing power with a minimum of power dissipation. This increases the reliability over a wide temperature range.

Memory

SDRAM

The board comes with up to 1GB of DDR2 SDRAM unit running at 1GHz.It is equipped with an Error Checking and Correction (ECC) mechanism providing a high degree of protection against errors. It is capable of detecting and correcting single errors while alerting when multiple errors arise. The ECC mechanism enhances the system reliability to a great extent.

NOR Flash and NAND Flash

The SBC includes 128 MB NOR flash and 8GB NAND flash that ensures sufficient memory resources for numerous applications.

Power Requirements

The SBC maybe configured to receive all its power from the Rear backplane +5.0V, auxiliary 3.3V supply and generate 1.0V, 1.1V, 1.2V, 1.5V, 1.8V, 2.5V, 3.3V using the on-board circuitry.

Timers

Real Time Clock

The SBC includes a Real Time Clock (RTC) for time and date keeping.

Watchdog Timer

The SBC provides an on-board hardware watchdog timer for programming the required time out interval after which it will reset the board.

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I/O Interfaces

Ethernet Interface

The two-gigabit Ethernet interface ports support the standard 10 MB/s, fast 100 MB/s or gigabit 1000 MB/s Ethernet links. The physical interface is a 10BaseT/100BaseTx twisted pair.

UART Ports

The SBC provides standard serial UART ports with one configurable RS-232/422 interface and One RS-422 serial port.

LVDS I/O

The SBC is equipped with eight pairs user configurable LVDS I/O.

Test and Diagnostic Software

The SBC comes with a complete bundle of firmware containing the following modules:

- Boot software for initialization
- Diagnostic software tool

Operating Systems Support

The SBC can be made available with Linux, VxWorks and Integrity.

PRODUCT SPECIFICATIONS

CPU

- Processor: Freescale MPC8548E PowerQUICC III processor
- Clock Frequency: Embedded PowerPC e500 core at 1.0GHZ
- X4 PCI Express
- X4 SRIO interface
- Two USB 2.0 Host ports
- L1 Cache: 32KB of instruction and data cache
- L2 Cache: 512KB of cache

Memory

- Global Memory: Up to 1GB DDR2 SDRAM
- ECC: Standard
- NOR Flash: 128MB
- NAND Flash: 8GB
- 16KB Serial EEPROM

XMC/PMC Interface

- x4 lane PCI express interface at 2.5 Gbps data rate per lane
- Dual PMC / XMC mezzanine sites

JTAG

- On-board JTAG interface to the processor for debugging and development purposes

Communication Ports

- Two 10/100/1000 Mbps Ethernet ports
- One configurable RS-232 /422 interfaces and One RS-422 serial port
- User configurable 8 pairs LVDS I/O

Peripherals

- One Real Time Clock
- One Watchdog
- Four on-board Temperature sensors

Mechanical

- 6U VPX single slot interface
- Dimensions- 233.35mm x 160mm

Power

- Derived form primary +5.0V of backplane
- 1V, 1.1V, 1.2V, 1.5V, 1.8V, 2.5V and 3.3V required for powering the on-board circuitry is generated from on-board power circuitry
- 3.3V auxiliary supply derived from VPX backplane
- Current consumption for 5.0V < 12A

Test and Diagnostic Software

- Boot software for initialization
- Diagnostic software tool

Operating Systems

- Linux (Kernel Ver 2.4.x and above) drivers, VxWorks and Integrity support

Environmental

- Temperature Range:

  Operating: -40ºC to + 85ºC
  Storage: -45ºC to + 100ºC

Warranty

- 1 year limited warranty

ORDERING INFORMATION

Hardware Selection

AT-VPX-SBC-MPC8548-SDRAM - NAND Flash

- 1 = With 8 GB NAND Flash Memory
- 2 = With 16 GB NAND Flash Memory

- 1 = 1 GB
- 2 = 2 GB
- 3 = 4 GB

Software Selection

AT-VPX-SBC-MPC8548-BSP

- 1 = Linux BSP
- 2 = VxWorks BSP
- 3 = Integrity BSP

- Contact sales for support for other Operating Systems
- Contact sales for configuration of front and rear I/O configuration
- Contact sales for environmental options

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