



- FreescaleMPC8548PowerQUICCIIIprocessor
- EmbeddedPowerPCe500coreat1.0Ghz
- 6UcardonVPX backplane
- 1GBofDDR2SDRAMwithECC
- NORFlashMemory-Upto128MB
- NANDFlashMemory-Upto8GB
- 16KBSerialEEPROM
- 16MB NVRAM
- TwoGigabitEthernetports
- TwoconfigurableRS232/RS422serialport
- DualPMC/ XMCmezzaninesites
- x4lanePCIexpressinterfaceat2.5Gbpsdatarateper lane
- x4laneSRIOinterfaceat2.5Gbpsdatarateperlane
- UserConfigurable8pairs-LVDS I/O
- Realtime clock
- Watchdogtimer
- Fourtemperaturesensors
- Voltagemonitoring
- Multi board Synchronous clock
- Debug port
- Linux,VxWorksOSavailable

## OVERVIEW

Freescale'sMPC8548next-generationPowerQUICCIIIprocessorintegratestheenhancede500PowerPCcoreandadvanced featuresuchasDDR2SDRAMwith1GB,128MBofNORflash,8GBofNANDFlash,Four64KBconfigurationEEPROM,upto1GHzofclockspeed,upto16MBofNVRAM,singleX4lanePCIExpressandx4lane SRIOinterface,8pairsLVDSI/O,andfour temperaturesensors.Thesystemprovidestherequiredinterfacestointerfacecustommodulesinthecustomsystem.Thesystemprovides communicationbusinterfaceslikeasynchronouscommunicationportsonRS232/422andtwo-gigabitEthernetports.TheSBCalso featuresawatchdogtimer,RealTimeClockandcomesequippedwithDualPMC/XMCmezzaninesites.

## DESCRIPTION

### CentralProcessingUnit

TheMotorolaPowerPCMPC8548seriesofprocessorsdeliverunmatchedcomputingpowerwithaminimumofpowerdissipation. Thisincreasesthereliabilityoverawidetemperaturerange.

### Memory

#### SDRAM

Theboardcomeswithupto1GBofDDR2SDRAMunitrunningat1GHz.ItisequippedwithanErrorCheckingandCorrection(ECC) mechanism providing a high degree of protection against errors. It is capable of detecting and correcting single errors while alerting whenmultipleerrorsarise.TheECCmechanismenhancesthesystemreliabilitytoagreatextent.

#### NORFlashandNAND Flash

TheSBCincludes128MBNORflashand8GBNANDflashthatensuresufficientmemoryresourcesforvariousapplications.

### Power Requirements

TheSBCmaybeconfiguredtoreceiveallitspowerfromtheRearbackplane+5.0V,auxiliary3.3Vsupplyandgenerate1.0V,1.1V, 1.2V,1.5V,1.8V,2.5V,3.3Vusingtheon-boardcircuitry.

### Timers

#### RealTimeClock

TheSBCincludesaRealTimeClock(RTC)fortimeanddatekeeping.

#### WatchdogTimer

TheSBCprovidesanon-boardhardwarewatchdogtimerforprogrammingtherequiredtimeoutintervalafterwhichitwillresettethe board.

# AT-VPX-SBC-MPC8548

## VPXSBCwithMultiProtocolInterface

### I/O Interfaces

#### EthernetInterface

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

#### UARTPorts

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

#### LVDSI/O

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

## PRODUCT SPECIFICATIONS

### CPU

- Processor: Freescale MPC8548 EP PowerQUICC III processor • One Watchdog
- Clock Frequency: Embedded PowerPC e500 core at 1.0GHz • Four on-board Temperature sensors
- 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 • Linux (Kernel Ver 2.4.x and above) drivers, VxWorks and Integrity support

### 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

## ORDERING INFORMATION

### Hardware Selection

AT-VPX-SBC-MPC8548-SDRAM-NANDFlash

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

### Software Selection

AT-VPX-SBC-MPC8548-BSP

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

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

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

### Test and Diagnostic Software

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

- Boot software for initialization
- Diagnostics software tool

### Operating Systems Support

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

### Peripherals

- One Real Time Clock

### Mechanical

- 6 UVPX single slot interface
- Dimensions - 233.35mm x 160mm

### Power

- Derived from 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 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
- Diagnostics software tool

### Operating Systems

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

### Environmental

- Temperature Range:  
Operating: -40°C to +85°C Storage:  
-45°C to + 100°C

### Warranty

- 1 year limited warranty



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