

Power and Flexibility

The Orion **VME7555** Single Board Computer (SBC) is the industry's most flexible, rugged, high-performance SBC for VME64x.

The VME7555 features the power of Four Freescale MPC7457 PowerPC™ processors each running at 1GHz. Four processors coupled with an unparalleled complement of I/O via the customer configurable "**Personality Modules**", we it can adapt to almost any Military, Industrial or Commercial application.



The **VME7555's** Gb Ethernet ports, six serial ports, 16 GPIO, Firewire and PMC P14 IO are all accessible through VME connectors P0 & P2.

The ability to **automatically detect** whether to function as a high-performance system controller or an intelligent peripheral card allows the user to migrate from one application to another without hardware reconfiguration.



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VME7555

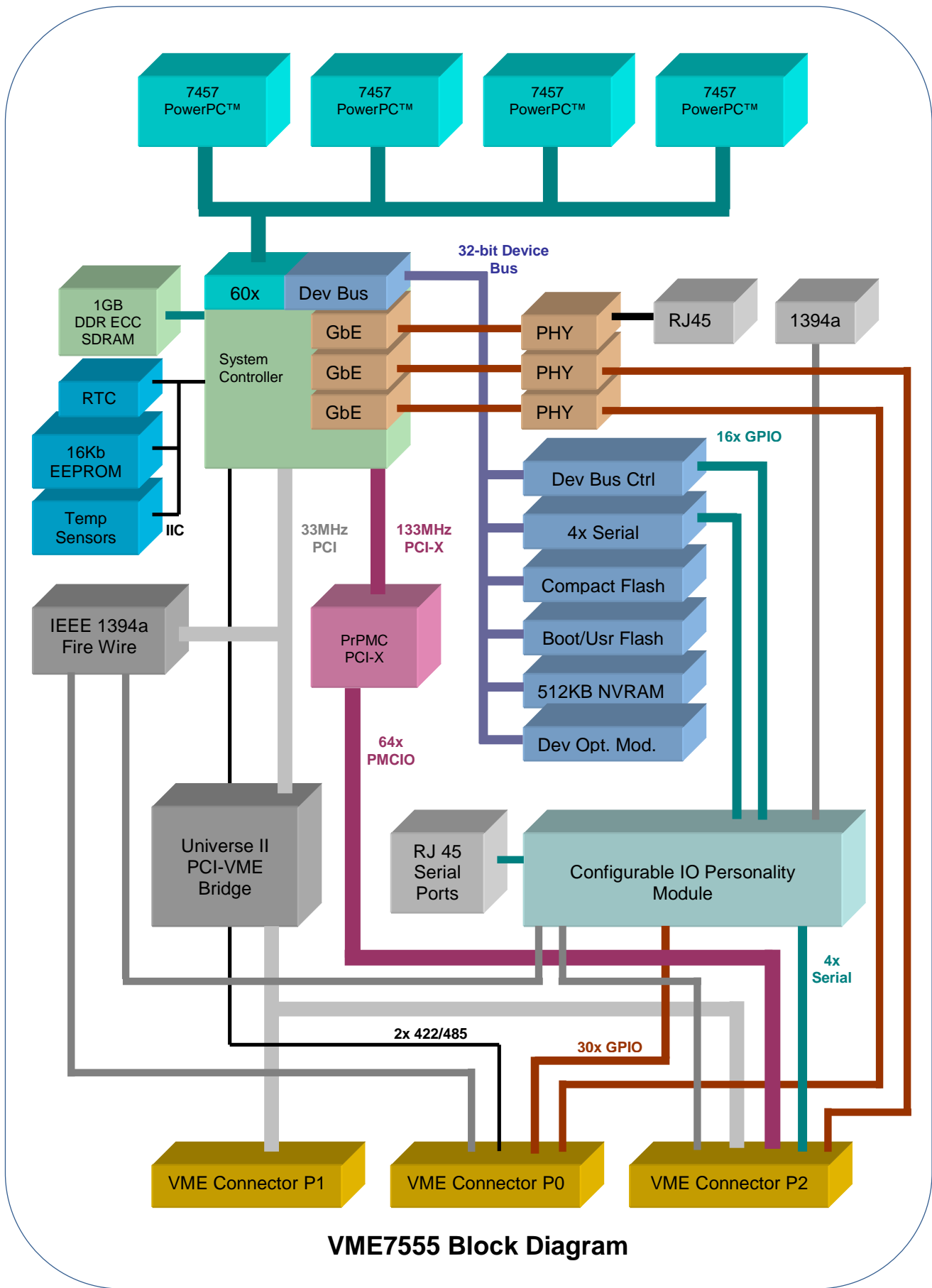
Conduction or Air Cooled 6U Single, Dual or Quad PowerPC SBC for VME64X



Features:

- ◆ Up to Four Freescale MPC7457 at 1GHz
- ◆ 512KB L2 & 2MB L3 Cache per Processor
- ◆ Extended Temperature & Rugged design
- ◆ On-board temperature monitoring
- ◆ 55W typical power dissipation (quad)
- ◆ 1GB soldered DDR SDRAM with ECC
- ◆ On-board Compact FLASH
- ◆ VME64x bus A32/D64 (Universe II)
- ◆ 64-bit/133MHz PCI-X PMC slot (**PrPMC**)
- ◆ Customer Configurable I/O via Personality Modules
- ◆ **Three** 10/100/1000 Ethernet ports
- ◆ **Two** RS-422/485 Serial ports
- ◆ **Four** additional configurable Serial ports
- ◆ **Sixteen** General purpose I/O
- ◆ 512MB NVRAM
- ◆ **Two** FireWire (1394a) ports
- ◆ PMC front panel & P14 Rear I/O
- ◆ Auto detects System or peripheral functionality
- ◆ RTC, GP, WD & timers
- ◆ COP/JTAG Debug headers for each CPU
- ◆ Single-slot 6U
- ◆ VxWorks, Linux Software Support
- ◆ U-Boot ROM Monitor Debugger
- ◆ Orion's Three-Year warranty & support

Orion ...Your partner in technology



VME7555 Block Diagram

Hardware Specifications

Processor:

PowerPC™: **MC7457**

Max Core Frequency: 1GHz
 Inst. Cache: 32KB
 Data Cache: 32KB
 L2 Cache: 512KB
 L2 Cache Frequency: Core Frequency
 L3 Cache: 2MB
 L3 Cache Frequency: 250MHz

Processor Bus:

PowerPC Bus Frequency: 100MHz
 PowerPC Bus Width: A32/D64 (60X Bus)
 Address Parity: Yes
 Data Parity: Yes

VME Bus:

VME Controller: Tundra Universe II
 VME Address Bus Width: A32
 VME Data Bus Width: D64
 VME Compliance: VME64x 5-row connector
 VME System Controller: Yes. Auto detection
 VME Peripheral Controller: Yes. Auto detection

Local PMC Bus:

PMC Bus Frequency: 133/66/33MHz
 PMC Bus Width: 64-bit
 PMC Signal Voltage: +3.3V
 PCI Compliance: PCISIG PCI R2.2, PCI-X
 PrPMC Support: Yes. Non-monarch
 PMC IO access: Standard front panel, cPCI J2

Local Device Bus:

Bus Frequency: 100MHz
 Bus Width: A32/D32/16/08
 Signal Voltage: +3.3V

Memory:

DRAM Memory Type: Soldered (memory down) DDR SDRAM
 DRAM Memory Size: 512MB or 1GB
 Compact FLASH: Socket, type I/II
 Boot FLASH: 32MB (NOR)
 Alternate Boot FLASH: 32MB (NOR)
 Non-volatile RAM: 512KB NVRAM
 I2C EEPROM: 16KB User-definable

Peripherals:

Three 10/100/1000 Ethernet Ports:

Controller: Integrated Discovery III MAC
 Configuration: Auto Negotiating 10/100/1000
 Access: Front Panel RJ-45, VME P0 & VME P2

Serial Ports (2x RS-422/485):

Controller Type: Integrated Discovery III MPSC
 Configuration: RS-422/485 w/sync clocks
 Access: VME P0

Serial Ports (4x Configurable):

Controller Type: Quad UART 16550 (TI TL16CP754)
 Configuration: TX/RX may be configured by the Personality Module for interface levels and routing to any combination of the front panel RJ50, VME P0 or VME P2.
 Access: Personality Module selectable for the front panel RJ50, VME P0 or VME P2.

General Purpose I/O:

Access: VME P0
 Configuration: 16 Programmable GPIO
 Signal levels: Configurable by Personality Module
 IEEE1394a: Dual port front panel & Backplane (Fire Wire)

Miscellaneous:

Timers: ♦ Programmable 32/64-bit timers
 ♦ Watchdog timer

Real Time Clock: ST Micro MT41T00S Backed Up
 Reset: Front panel & VME P2 reset generates VME system reset when System Controller. Resets local logic when Peripheral controller.

COP/JTAG: Processor COP/JTAG emulator interface
 JTAG: JTAG for board-level testing

Front Panel LEDs:
 ♦ Eight Runtime Status LEDs
 ♦ Eight Programmable Status LEDs
 ♦ RJ-45 Ethernet LEDs
 ♦ Backplane Ethernet Status LEDs

Specifications:

Power:	Single	Dual	Quad
VME Typical +3.3v:	TBD	TBD	TBD
VME Maximum +3.3v:	TBD	TBD	TBD
VME Typical +5v:	TBD	TBD	TBD
VME Maximum +5v:	TBD	TBD	TBD
Typical Power Dissipation:	TBD	TBD	TBD
Max Power Dissipation:	TBD	TBD	TBD

Environmental:

Operating Temperature: 0° to 60°C (commercial)
 -40° to 80°C (Conduction, measured at the rail)

Storage Temperature: -40° to 85°C

Relative Humidity: 5% to 95% non-condensing

Board Size: Single-slot 6U VME64x
 160mm x 233mm

Weight: TBD oz, TBD grams (with conduction cooled heat spreader)



Ordering Information

The following figure illustrates valid VME7555 model numbers available for ordering.

VME7555-xxxx

Base Model Number

Processor/Temperature Options

- 0 = Commercial Temperature, Air Cooled, 1GHz Freescale MPC7457
- 1 = Extended Temperature, Air Cooled, 1GHz Freescale MPC7457
- 2 = Extended Temperature, Conduction Cooled, 1GHz Freescale MPC7457
- (A) = Customer specific board configuration

Memory Options

- 0 = 512MB DDR, 16MB NOR Flash
- 1 = 512MB DDR, 128MB NOR Flash
- 2 = 1GB DDR, 16MB NOR Flash
- 3 = 1GB DDR, 128MB NOR Flash
- ** Will have different meaning if Processor/Temperature option is an "A"

Reserved

Must be 0

Reserved

Must be 0

We will gladly modify any of our products to meet your requirements. Just ask.

At Orion Technologies, our goal is to serve you, our customers. We are dedicated to finding high-quality, cost-effective solutions to meet your application. We will modify any Orion Technologies product or will design a custom solution to fill your requirements.

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