**Power and Flexibility**

The Orion VME7555 single board computer (SBC) is a flexible, rugged, high-performance PowerPC™ SBC for VME64x ideally suited for a variety of applications.

The VME7555 features the power of 1, 2 or 4 Freescale 7457 PowerPC™ processors each running at 1GHz. The VME7555 offers an unparalleled complement of I/O and can be adapted to almost any Military, Industrial or Commercial application.

The VME7555’s Gb Ethernet ports, six serial ports, sixteen GPIO, Firewire and PMC PI4 I/O are all accessible through VME connectors P0 and 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.

**Features**

- PowerPC™ Freescale MC7457 at 1GHz
- 512KB L2 and optional 2MB L3 Cache per Processor
- Single, Dual or Quad Processor options
- Extended Temperature and Rugged design
- On-board temperature monitoring
- 53.5W 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) with 64-bits of Customer Configurable PMC I/O
- Three 10/100/1000 Ethernet ports
- Two RS-422/485 Serial ports
- Four additional configurable Serial ports
- Sixteen General Purpose I/O
- 512KB NVRAM
- PMC front panel and PI4 Rear I/O
- Auto detects system or peripheral functionality
- Real time clock and watch dog timer
- COP/ JTAG Debug headers for each CPU
- Single-slot 6U
- Various Board Support Packages (BSPs) available including Linux, Wind River VxWorks
- 128MB NOR Flash
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 (optional)
- L3 Cache Frequency: 200MHz

Processor Bus
- PowerPC Bus Frequency: 100MHz
- PowerPC Bus Width: A32/D64
- 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: PCI SIG PC1 R2.2, PCI-X
- PrPMC Support: Yes. Non-monarch
- PMC IO access: Standard front panel, VME PO

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: 128MB (NOR)
- Alternate Boot FLASH: 128MB (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 and VME P2

Serial Ports (2x RS-422/485)
- Controller Type: Integrated Discovery III MPSC
- Configuration: RS-422/485 with 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 (RS-232/422/485) and routing to any combination of the front panel RJ50, VME P0 or VME P2. (Quad Core only)

Environmental

<table>
<thead>
<tr>
<th></th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Method</td>
<td>Air-cooled</td>
<td>Air-cooled</td>
<td>Air-cooled</td>
</tr>
<tr>
<td>Conformal Coating</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0 to +55°C</td>
<td>-40 to +55°C</td>
<td>-40 to +70°C</td>
</tr>
<tr>
<td>Vibration</td>
<td>0.002g²/Hz*</td>
<td>0.002g²/Hz*</td>
<td>0.04g²/Hz*</td>
</tr>
<tr>
<td>Shock</td>
<td>20g Peak sawtooth 11 ms</td>
<td>20g Peak sawtooth 11 ms</td>
<td>20g Peak sawtooth 11 ms</td>
</tr>
<tr>
<td>Humidity</td>
<td>0% to 95%, non-condensing</td>
<td>0% to 95%, non-condensing</td>
<td>0% to 95%, non-condensing</td>
</tr>
</tbody>
</table>

*Flat response to 1000 Hz
Options Guide

VME7555 - A B C D

Base Model Number

Processor/ Temperature Options
0 = Commercial Temperature, Air cooled, 1GHz Freescale MPC7457
1 = Extended Temperature, Air 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 a different meaning if Processor/Temperature option is an "A"

Reserved
Must be 0

Environmental Options
1 = Level 1
2 = Level 2
3 = Level 3

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Orion has successfully generated products utilizing an extensive assortment of microprocessors since 1990. Our single board computer product offering includes both custom and standard form factors such as VPX, VME, Compact PCI, XMC and PMC. The majority of our products are offered in five ruggedization levels from standard commercial to rugged, extended temperature with conduction cooling. At Orion, we put the customer at the center of our business. We strive to provide the highest quality of products backed by our exceptional service and support.

Whether it's a small quantity, one-time requirement or a high volume product for years to come, we would like to be your partner in embedded solutions.