One of first in a new line of VPX products from Emerson Network Power, the 3U iVPX7225 features the dual-core 3rd generation Intel® Core™ i7 2.5 GHz processor with integrated graphics and memory controller and the mobile Intel® QM77 PCH chipset with leading edge I/O functionality. This high compute density platform offers both high speed fabric connectivity with PCI Express and Gigabit Ethernet control plane connectivity with data transfer rates up to 5Gbps. On-board memory includes 8GB DDR3L-1600 memory (designed for 16GB), embedded USB flash, and 1MByte non-volatile Ferroelectric Random Access Memory (F-RAM). Additional connectivity includes three USB 2.0 ports, two serial ports, three SATA ports, eight GPIO, DisplayPort, VGA and one XMC site for maximum flexibility.

The iVPX7225 is a fully rugged SBC for extreme environments with extended shock, vibration, temperatures and conduction cooling. It is designed for a range of industrial, communication and military/aerospace applications.

The iVPX7225 software support includes UEFI compliant BIOS with password protection and a wide range of operating systems including Wind River VxWorks 6.9 and Linux 3.x.
iVPX7225 block Diagram

- **DDR3L ECC SDRAM Channel A**
- **DDR3L ECC SDRAM Channel B**
  - 8 GB on two channels

- **Intel® Ivy Bridge - Mbi+ECC LV CPU**
  - **Intel® Cougar Point Mbi QM77 PCH**

- **PLX PXE8617 PCIe Switch**
  - **Intel® 82560 Dual GbE Controller**
  - **1000BASE-BX**
  - **1000BASE-BX**

- **VPX Backplane P0/P1/P2**
  - **Dual XCVR**
  - **RS-232 or RS-422/485**
  - **SYS_CONN (RTM Control)**
  - **UART COMM1**
  - **UART COMM**
  - **Merged XDP Port**
  - **Peripherals Clocks**
  - **VGA**
  - **DisplayPort**

- **IPMC**
- **TPM**
- **FRAM 1MB**
- **Parallel Bus**
- **FPGA**
- **UART**
- **LPC**

- **BIOSFW Flash 1 8MB**
- **BIOSFW Flash 2 8MB**
- **SLC NAND Flash 4Gb**
- **SM3252 Flash Controller**
- **VPD EEPROM 256k**

- **Temp ETH Ctrl/IRQ Temp Sensor 1 Temp Sensor 2 Temp PCIe Switch Config ROM 512k-bit**
- **SMBus**
- **USB 2.0**
- **SMPsb**

- **DOR3L-1600**

- **PCIe x8 (Gen 2)**
  - **PCIe x4 (Gen 2)**
  - **PCIe x4 (Gen 2)**

- **1x SATA (2Gbps)**
- **3x SATA (2x 6Gbps, 1x 3Gbps)**
- **2x USB 2.0**
- **8 OHIO**

- **XMC Site**
  - **XMC I/O x12**
  - **(to P2)**

Downloaded from Arrow.com.
PRELIMINARY DATA SHEET  PROCESSOR
- Dual core 3rd generation Intel® Core™ i7 3555LE, 2.5GHz, 4MB L2 cache, 25W

MEMORY
- Dual channel DDR3L with ECC, soldered down
- Support for 8GBytes memory (designed to support up to 16GBytes)

USER FLASH / NVRAM MEMORY
- 4GByte embedded USB flash
- 1MByte F-RAM (NVRAM)

BOOT FLASH MEMORY
- Dual UEFI BIOS in dual 8MB SPI flash devices
- Support for crisis recovery

BACKPLANE I/O
- Two (2) 1000BASE-BX/KX Ethernet (Ultra Thin Pipe (control plane)
- Two (2) PCIe x4 Gen2 (Fat Pipe data plane)
  ▶ One port configurable with non-transparent bridging capability
- One (1) DisplayPort
- One (1) VGA
- Three (3) USB 2.0
- Three (3) SATA (2x 6Gbps, 1x 3Gbps)
- Two (2) RS-232/RS-422/RS-485
- Eight (8) GPIO
- XMC X12d I/O (to P2; optional X8d)
- SMBus
- IPMC I2C
- Selective Read-Only Override pins
- RTM control signals

FRONT PANEL
- Air cooled
  ▶ XMC front panel I/O
  ▶ Reset switch
  ▶ Status LEDs
- Conduction cooled
  ▶ Reset switch
  ▶ Status LEDs

ETHERNET CONTROLLERS
- PCIe x4 to 2X 1000BASE-BX/KX to OpenVPX backplane through 82580 Ethernet controller

EXPANSION I/O
- One (1) XMC expansion site with PCIe x8 Gen 2 and 1 x SATA 3Gbps connections.

OpenVPX PROFILES
- Payload module profile
  ▶ MOD3-PAY-2F2U-16.2.3-2/3
  ▶ MOD3-PAY-1F1F2U-16.2.4-3/4
- Payload slot profile
  ▶ SLT3-PAY-2F2U-14.2.3
  ▶ SLT3-PAY-1F1F2U-14.2.4

OPTIONAL TRANSITION MODULE
- Mini DisplayPort, VGA, USB 2.0, Ethernet, Serial, I²C, GPIO, SATA, SMC I/O, write protect override switches

OTHER FEATURES
- Watchdog unit
- Trusted Platform Module (TPM)
- Intel® vPro™ Technology capable (supports Intel® TXT, VT, and TPM)
- VITA 46.11 system management IPMI V1.5 compliant
- Multiple 32-bit timers
- Temperature sensors
- Status and user LEDs
- Reset switch
- Locking ejector handle

BIOS
- UEFI BIOS

POWER REQUIREMENTS
- Maximum for 2.5GHz, 8GByte memory variant
  ▶ 5.0 V 58W (Estimated)

POWER REQUIREMENTS
- Intended for use in systems meeting the following regulations:
  ▶ US: FCC Part 15, Subpart B, Class A (non-residential)
  ▶ Canada: ICES-003, Class A (non-residential)

DOCUMENTATION
- Installation and User Manual: Front Board and RTM
- Hardware Release Notes
- Software Release Notes/Guides
**Environmental Specifications**

<table>
<thead>
<tr>
<th>Ruggedization Level</th>
<th>ENP1</th>
<th>ENP2</th>
<th>ENP3</th>
<th>ENP4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Method</td>
<td>Forced Air</td>
<td>Forced Air</td>
<td>Conduction</td>
<td>Conduction</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0 °C to +55 °C</td>
<td>-40 °C to +71 °C</td>
<td>-40 °C to +71 °C</td>
<td>-40 °C to +85 °C</td>
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<tr>
<td>Storage Temperature</td>
<td>-40 °C to +85 °C</td>
<td>-50 °C to +100 °C</td>
<td>-50 °C to +100 °C</td>
<td>-50 °C to +125 °C</td>
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<tr>
<td>Vibration Random (1 Hr/Axis)</td>
<td>0.01g/Hz, 15 to 2000 Hz</td>
<td>0.04g/Hz, 15 to 2000 Hz</td>
<td>0.1g/Hz, 15 to 2000 Hz (8GRMS)$^1$</td>
<td>0.1g/Hz, 15 to 2000 Hz (12GRMS)$^2$</td>
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<tr>
<td>Shock</td>
<td>20g/11ms</td>
<td>30g/11ms</td>
<td>40g/11ms</td>
<td>40g/11ms</td>
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<tr>
<td>Humidity</td>
<td>to 95% RH$^3$</td>
<td>to 100% RH$^3$</td>
<td>to 100% RH$^3$</td>
<td>to 100% RH$^3$</td>
</tr>
<tr>
<td>Conformal Coating</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>

Note 1: Flat 15-1000 Hz, -6db/octave 1000-2000 Hz [MIL-STD 810F Figure 514.5C-17]
Note 2: +3db/octave 15-300 Hz, Flat .1g2 300-1000 Hz, -6db/octave 1000-2000 Hz [MIL-STD 810F Figure 514.5C-8]
Note 3: Up to 100% RH with optional conformal coating
PRELIMINARY DATA SHEET

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>iVPX7225-02250802</td>
<td>3U VPX, Air, Dual-Core 2.5GHz 3555LE, 8GB DDR3L, .8” FP, ENP2</td>
</tr>
<tr>
<td>iVPX7225-02250822</td>
<td>3U VPX, Air, QuadDual-Core 2.5GHz E3555LE, 8GB DDR3L, 1” FP, ENP2</td>
</tr>
<tr>
<td>iVPX7225-02250813L</td>
<td>3U VPX, Conduction, Dual-Core 2.5GHZ 3555LE, 8GB DDR3L, .85” PITCH, ENP3</td>
</tr>
<tr>
<td>iVPX7225-02250813</td>
<td>3U VPX, Conduction, Dual-Core 2.5GHZ 3555LE, 8GB DDR3L, .85” PITCH, ENP3, NO 2LM COVERS</td>
</tr>
<tr>
<td>iVPX7225-RTM</td>
<td>3U VPX, AIR, RTM FOR iVPX7225, .8” FACEPLATE</td>
</tr>
<tr>
<td>iVPX7225-RTM-1</td>
<td>3U VPX, AIR COOLED, RTM FOR iVPX7225, 1” FACEPLATE</td>
</tr>
</tbody>
</table>

SOLUTION SERVICES

Emerson Network Power provides a portfolio of solution services optimized to meet your needs throughout the product lifecycle. Design services help speed time-to-market. Deployment services include global 24x7 technical support. Renewal services enable product longevity and technology refresh.

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