**Introduction**

The Matrix MXC-6300/6310/6320 series is a high-performance fanless embedded computer integrating a 3rd generation Intel® Core™ i7/i5/i3 processor and QM77 chipset to provide powerful computing and superior graphic performance. Graphic-intensive and computing-oriented applications including image and vision measurement, machine automation, maritime automation, surveillance and high-resolution medical imaging all benefit.

Increased PCI & PCI express (Gen2) expansion slots allow installation of a variety of PCI, PCIe x8 or PCIe x16 add-on cards, meeting the needs of application platform development environments. In addition, the MXC-6300/6310/6320 series offers 2 DisplayPort and one DVI-I port for three independent display support connections, four USB 3.0 and two USB 2.0 ports, and 2 GbE LAN ports with teaming function. The two 2.5" onboard SATA III ports with high speed SATA 6 Gb/s and RAID 0, 1 ensure all data in the RAID array is fully backed up. Built-in 16 CH isolated DIO provides overall industrial control.

Delivering high quality, durable and compact construction, the MXC-6300/6310/6320 series leverages a reliable fanless and cable–free configuration, optimal thermal dissipation, and easy installation for flexible and user-friendly system development and application implementation in harsh environments.

**Features**

- Supports 3rd generation Intel® Core™ i7/i5/i3 processor + QM77 chipset
- 2 x DDR3 SO-DIMM socket, supporting up to 16 GB memory
- 1 PCI + 2 PCIe x8 slots or 1 PCI + 1 PCIe x16 for MXC-6300 series;
  1 PCI + 1 PCIe x16 for MXC-6310 series, 3 PCI + 1 PCIe x16 for MXC-6320 series
- 3 independent display capability with onboard 2 DisplayPort + 1 DVI-I
- 6 external USB ports (4 USB 3.0 + 2 USB 2.0) + 1 internal USB 2.0
- 2 Intel® GigE ports with teaming function, Intel® iAMT 8.0
- 2 CFax sockets, onboard SATA III for 2 x 2.5” HHD/SSD installation, SATA 6Gb/s and RAID 0,1 support
- Built-in 9 Vdc to 32 Vdc wide-range DC power input
- Rugged, up to -20°C to 60°C (-4°F to 140°F) fanless operation (w/ industrial SSD)

**Applications**

- Factory Automation / Machine Vision
- Intelligent Transportation Systems / Surveillance
- Maritime Automation
- High Resolution Medical Imaging

**Software Support**

- **OS Information**
  - Windows® 7/Embedded standard 7/XP/XP Embedded
  - Linux
- *Linux Distribution by Request*

**Easy-to-install Optional Fan Module**

*Extending the operating temperature is optional and requires use of an industrial solid-state drive storage device. PCI/PCIe cards may affect thermal performance.*
## Specifications

### System Core
- **Processor**: Intel® Core™ i7-3610QE, 2.3/3.3 GHz, 6M cache  
  Intel® Core™ i5-3610ME, 2.7/3.3 GHz, 3 M cache  
  Intel® Core™ i3-3120ME, 2.4 GHz, 3 M cache  
  Intel® Celeron 1020E, 2.2 GHz, 2 M cache
- **Chipset**: Intel® Mobile Platform Controller Hub (QM77)
- **Video**: Three independent display capability (2 DisplayPort + 1 VGA or 2 DisplayPort + 1 DVI-D)
  1st DP: up to 2560x1600 / 2nd DP: up to 1920x1200 / 4th DP/Indian: up to 1920x1200
- **Memory**: 4 GB DDR3  
  16 DI + 16 DO

### I/O Interface
- **Expansion Slots**: 1 PCI + 2 PCIe x8 slots or 1 PCI + 1 PCIe x16 (MXC-6300 series), 3 PCI + 1 PCIe x16 (MXC-6310 series)
- **Ethernet**: 2 Intel® GbE ports (1 Intel® Springville WGI210IT + 1 82579LM)
- **Serial Ports**: 2 software-programmable RS-232/422/485 (COM 1&2) with autoswitch control, 2 RS-232 (COM 3&4)
- **USB**: 6 external USB ports (4 USB 3.0 + 2 USB 2.0) + 1 internal USB 2.0
- **DIO**: 16-CH DI and 16-CH DO with 1.5KV isolation
- **Audio**: 1 MIC-in and 1 Line-out
- **KB/MS**: 1 PS/2 keyboard and 1 PS/2 mouse
- **WDT**: Supports a watchdog timer

### Power Supply
- **DC Input**: Built-in 9-32 V ac wide-range DC input, pluggable connectors with latch (GND, V-, V+), 2-pin remote power on/off switch
- **AC Input**: Optional 160 W external AC-DC adapter for AC input

### Storage Device
- **SATA HDD**: 2 onboard SATA-III for 2.5" HDD/SSD installation, SATA RAID 0,1 & SATA 6 Gb/s support
- **CompactFlash**: 2 CFast socket (1 external + 1 internal)

### Mechanical
- **Optional Fan Module**: Optional fan module for dissipating heat generated by PCI/PCIe card, Smart fan control
- **Dimensions (MXC-6300/MXC-6320 series)**: 172.5 (W) x 225 (D) x 213 (H) mm (6.9" x 9" x 8.52")
  MXC-6310 series: 154 (W) x 225 (D) x 213 (H) mm (6.16" x 9" x 8.52")
- **Weight**: MXC-6300/6320 series: 4.3 kg (9.5 lbs); MXC-6310 series: 3.8kg (8.39 lbs)
- **Mounting**: Wall-mount kit

### Environmental
- **Operating Temperature**: Standard: 0°C to 50°C (32°F to 122°F)
  Extended temperature option*: -20°C to 55°C (-4°F to 131°F) (w/industrial SSD or CFast) for MXC-6300/6311D  
  -20°C to 60°C (-4°F to 140°F) (w/industrial SSD or CFast) for MXC-6300/6300D/6311D/6312D/6313D
- **Storage Temperature**: -40°C to 85°C (-40°F to 185°F) (excl. HDD/SSD/CFast)
- **Humidity**: 95% @ 40°C (104°F) (non-condensing)
- **Vibration**: Operating: 5 Grms, 5-500 Hz, 3 axes (w/ CFast or SSD)  
  Operating: 0.5 Grms, 5-500 Hz, 3 axes (w/ HDD)
- **ESD**: Contact +/-4 KV and Air +/-8 KV
- **Shock**: Operating: 50 G, half sine 11 ms duration (w/ CFast or SSD)  
  EMC: CE and FCC Class A
- **Safety**: UL/cUL, CB, KCC

### Ordering Information

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Description</th>
<th>Expansion Slots</th>
<th>Memory</th>
<th>DIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>MXC-6301D</td>
<td>Intel® Core™ i7-3610QE fanless computer</td>
<td>1 PCI + 2 PCIe x8 slots or 1 PCI + 1 PCIe x16</td>
<td>4 GB DDR3</td>
<td>16 DI + 16 DO</td>
</tr>
<tr>
<td>MXC-6302D</td>
<td>Intel® Core™ i5-3610ME fanless computer</td>
<td>1 PCI + 2 PCIe x8 slots or 1 PCI + 1 PCIe x16</td>
<td>4 GB DDR3</td>
<td>16 DI + 16 DO</td>
</tr>
<tr>
<td>MXC-6303D</td>
<td>Intel® Core™ i3-3120ME fanless computer</td>
<td>1 PCI + 2 PCIe x8 slots or 1 PCI + 1 PCIe x16</td>
<td>4 GB DDR3</td>
<td>16 DI + 16 DO</td>
</tr>
<tr>
<td>MXC-6305D</td>
<td>Intel® Celeron 1020E fanless computer</td>
<td>1 PCI + 2 PCIe x8 slots or 1 PCI + 1 PCIe x16</td>
<td>4 GB DDR3</td>
<td>16 DI + 16 DO</td>
</tr>
<tr>
<td>MXC-6311D</td>
<td>Intel® Core™ i7-3610QE fanless computer</td>
<td>1 PCI + 1 PCIe x16</td>
<td>4 GB DDR3</td>
<td>16 DI + 16 DO</td>
</tr>
<tr>
<td>MXC-6312D</td>
<td>Intel® Core™ i5-3610ME fanless computer</td>
<td>1 PCI + 1 PCIe x16</td>
<td>4 GB DDR3</td>
<td>16 DI + 16 DO</td>
</tr>
<tr>
<td>MXC-6313D</td>
<td>Intel® Core™ i3-3120ME fanless computer</td>
<td>1 PCI + 1 PCIe x16</td>
<td>4 GB DDR3</td>
<td>16 DI + 16 DO</td>
</tr>
<tr>
<td>MXC-6321D</td>
<td>Intel® Core™ i7-3610QE fanless computer</td>
<td>3 PCI + 1 PCIe x16</td>
<td>4 GB DDR3</td>
<td>16 DI + 16 DO</td>
</tr>
<tr>
<td>MXC-6322D</td>
<td>Intel® Core™ i5-3610ME fanless computer</td>
<td>3 PCI + 1 PCIe x16</td>
<td>4 GB DDR3</td>
<td>16 DI + 16 DO</td>
</tr>
<tr>
<td>MXC-6323D</td>
<td>Intel® Core™ i3-3120ME fanless computer</td>
<td>3 PCI + 1 PCIe x16</td>
<td>4 GB DDR3</td>
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</tr>
</tbody>
</table>

### Optional Accessories
- **MXC-6300/6310 Optional Fan Module**: Fan module for MXC-6300/6310 series
- **500 GB/1 TB HDD Option**: Factory-installed 500 GB/1 TB SATA hard disk drive (0°C to 60°C, 32°F to 140°F)
- **32/64 GB SSD Option**: Factory-installed 32/64 GB MLC SATA solid-state drive (0°C to 70°C, 32°F to 158°F)
- **160 W AC-DC Adapter**: 160 W industrial grade AC-DC adapter (-20°C to 70°C, -4°F to 158°F)

*For more options regarding display and COM port cables, please refer to page 1-28.

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