Intel® Atom™ Processor E3900 Series
COM Express® Mini

**AL9A2**

**Features**
- Single Channel DDR3L 1600MHz Memory Down to 8GB
- 1 LVDS/eDP, 1 DDI (HDMI/DVI/DP)
- Supports dual displays: DDI + LVDS/eDP
- DP++ resolution supports up to 4096x2160 @ 60Hz
- Multiple expansions: 4 PCIe x1
- Rich I/O: 1 Intel GbE, 2 USB 3.0, 8 USB 2.0

**Mechanical Drawing**

**Block Diagram**
Specifications

SYSTEM

Processor
- Intel® Atom™ Processor E3900 Series, BGA 1296
- Intel® Atom™ x7-E3950 Processor, Quad Core, 2M Cache, 1.6GHz (2.0GHz), 12W
- Intel® Atom™ x5-E3940 Processor, Quad Core, 2M Cache, 1.6GHz (1.8GHz), 9.5W
- Intel® Atom™ x5-E3930 Processor, Dual Core, 2M Cache, 1.3GHz (1.8GHz), 6.5W
- Intel® Pentium® Processor N4200, Quad Core, 2M Cache, 1.1GHz (2.5GHz), 6W (without ECC function)
- Intel® Celeron® Processor N3350, Dual Core, 2M Cache, 1.1GHz (2.4GHz), 6W (without ECC function)

Memory
- 4GB/8GB DDR3L Memory Down
- Single Channel DDR3L 1600MHz

BIOS
- AMI SPI 128Mbit (supports UEFI boot only)

GRAPHICS

Controller
- Intel® HD Graphics

Display
- LVDS: single channel 24-bit, resolution up to 1366x768 @ 60Hz
- DP+: resolution up to 4096x2160 @ 60Hz
- eDP: resolution up to 3840x2160 @ 60Hz

EXPANSION

Interface
- 4 x PCIe x1 (Gen 2)
- 1 x SDIO (available upon request)
- 1 x LPC
- 2 x I²C
- 1 x SMBus
- 1 x SPI
- 2 x UART (TX/RX)

I/O

USB
- 2 x USB 3.0
- 8 x USB 2.0

SATA
- 2 x SATA 3.0 (up to 6Gbps)

eMMC
- 1 x 8GB/16GB/32GB/64GB eMMC (available upon request)

GPIO
- 1 x 8-bit GPIO

WATCHDOG TIMER

Output & Interval
- System Reset, Programmable via Software from 1 to 255 Seconds

POWER

Type
- 4.75V~20V, 5VSB, VCC_RTC (ATX mode)
- 4.75V~20V, VCC_RTC (AT mode)

Consumption
- Typical: E3950: 12V @ 0.44A (5.28W)
- Max.: E3950:12V @ 1.89A (22.68W)

OS SUPPORT (UEFI ONLY)

Windows 10 IoT Enterprise 64-bit
- Fedora 24 (Intel® graphic driver available)
- Linux
- Yocto Project v2.0

ENVIRONMENT

Temperature
- Operating: 0 to 60°C
- Storage: -40 to 85°C

Humidity
- Operating: 5 to 90% RH
- Storage: 5 to 90% RH

MTBF
- 2,230,979 hrs @ 25°C; 1,334,511 hrs @ 45°C; 862,577 hrs @ 60°C
- Calculation model: Telcordia Issue 4
- Environment: GB, GC – Ground Benign, Controlled

MECHANICAL

Dimensions
- COM Express® Mini 84mm (3.30") x 55mm (2.16")

Compliance
- PICMG COM Express® R2.1, Type 10

Ordering Information

<table>
<thead>
<tr>
<th>Model Name</th>
<th>P/N</th>
<th>Processor</th>
<th>Memory</th>
<th>eMMC</th>
<th>DIO/SDIO</th>
<th>LVDS/eDP</th>
<th>GbE</th>
<th>USB 3.0</th>
<th>USB 2.0</th>
<th>Power</th>
<th>Thermal</th>
<th>Temp.</th>
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<td>AL9A2-T80-E3940</td>
<td>770-AL9A21-000G</td>
<td>E3940</td>
<td>8 GB ECC</td>
<td>N/A</td>
<td>DIO</td>
<td>LVDS</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>ATX/AT</td>
<td>Fanless</td>
<td>-40 to 85°C</td>
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<tr>
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<td>LVDS</td>
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</tr>
</tbody>
</table>

Note: N4200 is supported upon request with MOQ requirement.

Packing List

- 1 AL9A2 board
- 1 Heat sink

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