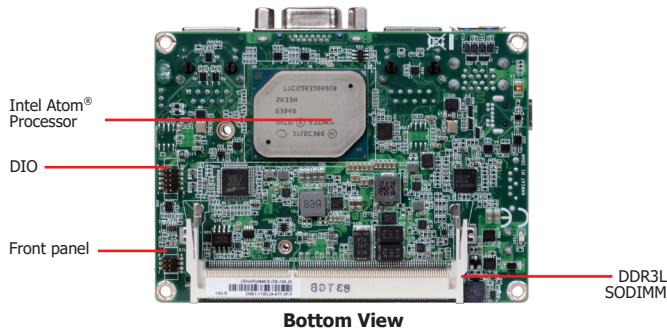
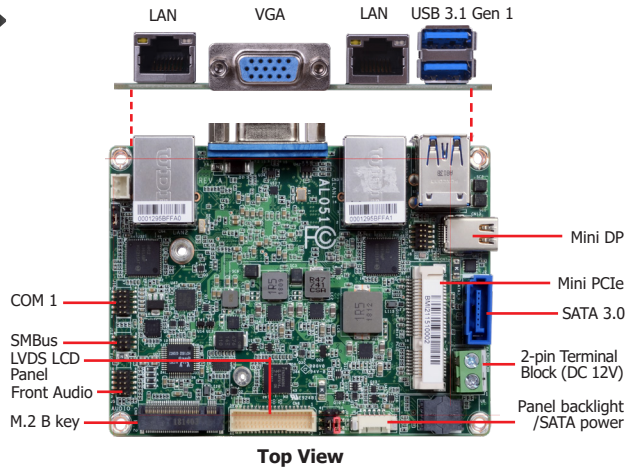


AL051

Atom



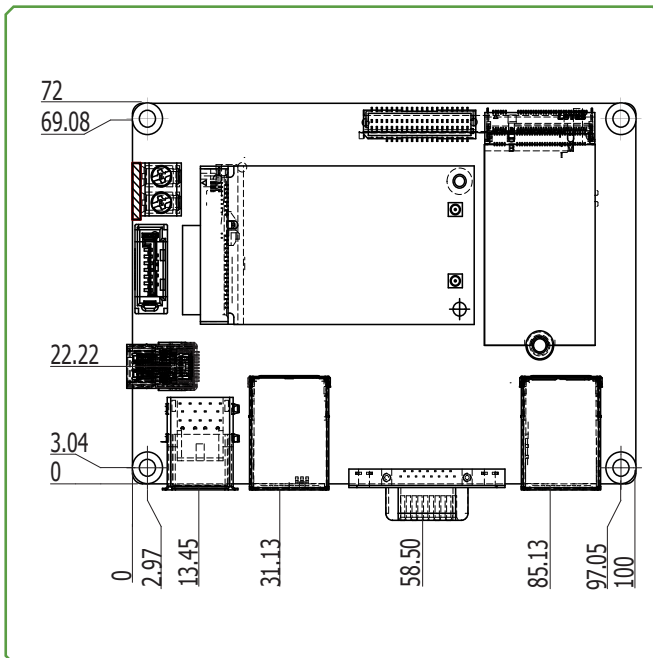
Features

- Small form factor 2.5" Pico-ITX for space-limited applications
- 1 DDR3L SODIMM up to 8GB
- Triple independent displays: VGA + Mini DP++ + LVDS
- Expansion and Storage: 1 Mini PCIe, 1 M.2, 1 SMBus
- Rich I/O: 2 Intel GbE, 1 COM, 2 USB 3.1 Gen 1, 2 USB 2.0

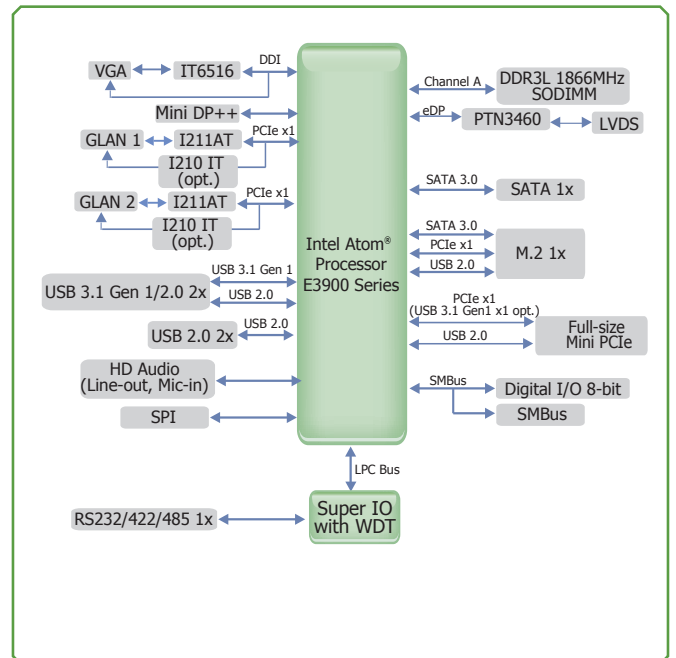
* Populated by default



Mechanical Drawing



Block Diagram



Specifications

| | | |
|-------------------------------|------------------------------|---|
| SYSTEM | Processor | Intel Atom® Processor E3900 Family, 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 Intel® Celeron® Processor N3350, Dual Core, 2M Cache, 1.1GHz (2.4GHz), 6W |
| | Memory | One 204-pin SODIMM up to 8GB Single Channel DDR3L 1866MHz |
| | BIOS | Insyde SPI 64Mbit (supports UEFI boot only) |
| | GRAPHICS | Controller Intel® HD Graphics |
| GRAPHICS | Feature | OpenGL 4.2, Direct X 11.1, OpenCL 1.2, OGL ES 3.0 HW Decode: H.264, MPEG2, VC1, VP8, H.265, MPEG4 HW Encode: H.264, MPEG2, MPEG4 |
| | Display | 1 x Mini DP++ 1 x VGA 1 x LVDS Mini DP++: resolution up to 4096x2160 @ 60Hz VGA: resolution up to 1920x1200 @ 60Hz LVDS: dual channel 18/24-bit, resolution up to 1920x1200 @ 60Hz |
| | Triple Displays | VGA + Mini DP++ + LVDS |
| | EXPANSION | Interface 1 x Full-size Mini PCIe (PCIe/USB 2.0, optional USB 3.1 Gen1/USB 2.0) 1 x M.2 B key 2242. (PCIe/USB 2.0/SATA 3.0) |
| AUDIO | Audio Codec | Realtek ALC888S-VD2-GR |
| ETHERNET | Controller | 2 x Intel® I211AT PCIe (10/100/1000Mbps) 2 x Intel® I210IT PCIe (10/100/1000Mbps) (available upon request) |
| REAR I/O | Ethernet | 2 x GbE (RJ-45) |
| | USB | 2 x USB 3.1 Gen 1 |
| | Display | 1 x Mini DP++ 1 x VGA 1 x LVDS |
| INTERNAL I/O | Serial | 1 x RS-232/422/485 (1.27mm pitch) |
| | USB | 2 x USB 2.0 (1.27mm pitch) |
| | Display | 1 x LVDS LCD Panel Connector |
| | Audio | 1 x Audio (Line-out/Mic-in) |
| | SATA | 1 x SATA 3.0 (up to 6Gb/s) |
| | DIO | 1 x 8-bit DIO |
| | SMBus | 1 x SMBus |
| WATCHDOG TIMER | Output & Interval | System Reset, Programmable via Software from 1 to 255 Seconds |
| SECURITY | TPM | fTPM2.0 |
| POWER | Type | Single 12V +/-10% DC |
| | Connector | 2-pin Terminal Block 2-pin Vertical Type Connector (opt.) |
| | RTC Battery | CR2032 Coin Cell |
| | Consumption | Typical: E3950:12V @ 0.51A (6.12Watt) Max.: E3950:12V @ 2.00A (24.00Watt) |
| OS SUPPORT (UEFI Only) | Microsoft/Linux | Windows 10 IoT Enterprise (64-bit) Linux |
| ENVIRONMENT | Temperature | Operating: 0 to 60°C, Option: -20 to 70°C/-40 to 85°C Storage: -40 to 85°C |
| | Humidity | Operating: 5 to 90% RH Storage: 5 to 90% RH |
| | MTBF | 497,857 hrs @ 25°C; 318,774 hrs @ 45°C ; 213,436 hrs @ 60°C |
| MECHANICAL | Dimensions | 2.5" Pico-ITX Form Factor 100mm (3.94") x 72mm (2.83") |
| | Height | PCB: 1.6mm Top Side: 15mm, Bottom Side: 8mm |
| CERTIFICATIONS | Certifications | CE, FCC, RoHS |

Ordering Information

| Model Name | P/N | Processor | Memory | Display | GbE | RS-232/422/485 | USB 3.1 Gen 1 | USB 2.0 | Power | Thermal | Temp. |
|----------------|-----------------|-----------|----------|------------------------|-----|----------------|---------------|---------|-------|---------|-------------|
| AL051-BC-E3930 | 770-AL0511-000G | X5-E3930 | 1 SODIMM | VGA + LVDS + Mini DP++ | 2 | 1 | 2 | 2 | 12VDC | Fanless | 0 to 60°C |
| AL051-BC-E3940 | 770-AL0511-100G | X5-E3940 | 1 SODIMM | VGA + LVDS + Mini DP++ | 2 | 1 | 2 | 2 | 12VDC | Fanless | 0 to 60°C |
| AL051-BC-E3950 | 770-AL0511-200G | X7-E3950 | 1 SODIMM | VGA + LVDS + Mini DP++ | 2 | 1 | 2 | 2 | 12VDC | Fanless | 0 to 60°C |
| AL051-BC-N3350 | 770-AL0511-300G | N3350 | 1 SODIMM | VGA + LVDS + Mini DP++ | 2 | 1 | 2 | 2 | 12VDC | Fanless | 0 to 60°C |
| AL051-EC-E3930 | 770-AL0511-400G | X5-E3930 | 1 SODIMM | VGA + LVDS + Mini DP++ | 2 | 1 | 2 | 2 | 12VDC | Fanless | -20 to 70°C |
| AL051-TC-E3930 | 770-AL0511-500G | X5-E3930 | 1 SODIMM | VGA + LVDS + Mini DP++ | 2 | 1 | 2 | 2 | 12VDC | Fanless | -40 to 85°C |

Note: N4200 is supported upon request with MOQ requirement.

Packing List

| | |
|---|--|
| • 1 AL051 board | |
| • 1 Serial ATA data cable (Length: 152mm) | A81-002000-000G |
| • 1 Y cable for SATA and inverter power (Length: 155mm) | A81-020016-018G |
| • 1 Heat spreader (Height: 11mm) | E Series CPU: A71-808308-010G N Series CPU: A71-808309-010G |

Optional Items

| | |
|---|-----------------|
| • USB port cable (Length: 200mm) | A81-001084-016G |
| • 1 COM port cable (Length: 300mm) | A81-015050-016G |
| • Power adapter (60W, 12V, DC Jack) | 671-106012-000G |
| • 2 pole terminal to DC Jack cable | A81-004013-000G |
| • 1 Audio cable (Length: 160mm) | A81-022037-016G |
| • Heat sink for E series CPU 0 to 60°C/wide temp (Height: 22.6mm) | A71-008111-000G |
| • Heat sink for N series CPU 0 to 60°C (Height: 19mm) | A71-008108-000G |