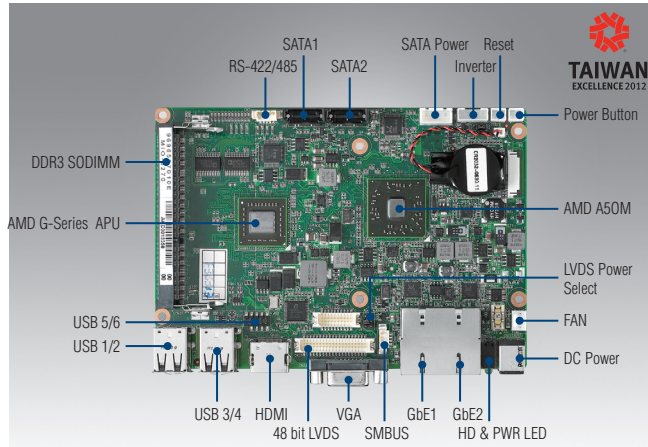


MIO-5270

**AMD® G- Series 3.5" MI/O-Compact SBC,
DDR3, HDMI, 48-bit LVDS, VGA, 2 GbE, CFast,
iManager, MIOe**



Features

- Embedded AMD® G- Series Single Core/ Dual Core APU + AMD A50M FCH, 1 x DDR3 memory up to 4 GB capacity
- DirectX® 11, 2D/3D Acceleration, multiple display: 48-bit LVDS, HDMI, VGA
- Flexible design using integrated multiple I/O:MIOe to approach vertical applications & keep domain knowhow.
- 2 GbE support, HD Audio, Rich I/O interface with 4 COM, 2 SATA, 6 USB and 8-bit GPIO
- Supports iManager, SUSIAccess and Embedded Software APIs

Software APIs:



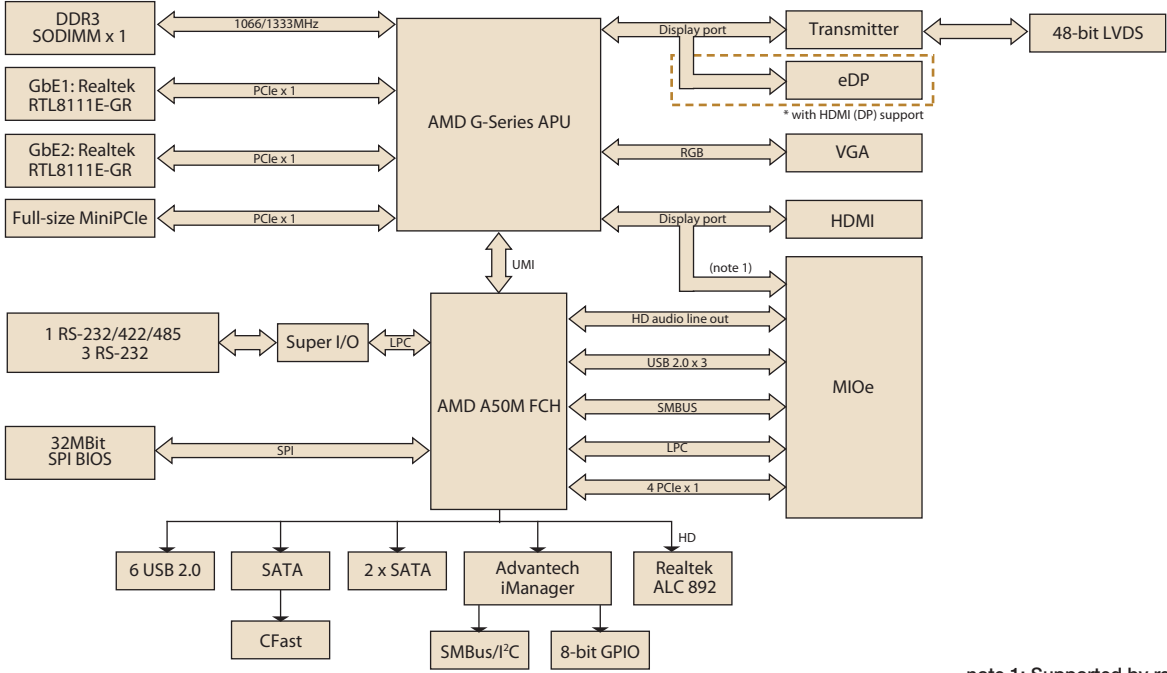
Utilities:



Specifications

| | | | | |
|--------------------------|--------------------------------------|---|------------------------|---------------------|
| Processor System | CPU | AMD G- Series T40R | AMD G-Series T40E | AMD G-Series T56N |
| | Frequency | 1.0GHz (single-core) | 1.0GHz (dual-core) | 1.65GHz (dual-core) |
| | L2 Cache | 512 KB | 512 KB | 1 MB |
| | System Chipset | AMD G-Series APU + A50M FCH | | |
| | BIOS | AMI EFI 32Mbit | | |
| Memory | Technology | DDR3 1066 MHz, 1333MHz only for T56N | | |
| | Max. Capacity | 4 GB | | |
| | Socket | 1 x 204-pin SODIMM | | |
| | Recommended memory | SQR-SD3M-2G1K6SNLB | | |
| Display | Chipset | AMD Radeon™ HD 6320/6250 (T40E & T40R) DirectX® 11 graphics with UVD 3.0 2D Acceleration, 3D Acceleration, Motion Video Acceleration, Supports DVD, Blu-ray* Hardware decode (UVD 3):H.264, VC-1 & MPEG2 | | |
| | Graphic Engine | AMD Radeon™ HD 6320/6250 (T40E & T40R) DirectX® 11 graphics with UVD 3.0 2D Acceleration, 3D Acceleration, Motion Video Acceleration, Supports DVD, Blu-ray* Hardware decode (UVD 3):H.264, VC-1 & MPEG2 | | |
| | LVDS | LVDS: Supports single channel 24-bit or dual channel 48-bit LVDS T56N up to 2560 x 1600 at 60 Hz, T40R & T40E up to 1920 x 1200 at 60 Hz (pixel clock rate = 80 MHz) | | |
| | VGA | T56N up to 2560 x 1600, T40R & T40E up to 1920 x 1200 | | |
| | HDMI | Supports 1920 x 1080p at 60 Hz, 36 bpp, Supports HDMI 1.3, using TMDS data encoding | | |
| | eDP | Option (supported by request) T56N up to 2560 x 1600, T40R & T40E up to 1920 x 1200 | | |
| | Multi-Display | VGA+LVDS or VGA + HDMI or HDMI + LVDS | | |
| Ethernet | Speed | 10/100/1000Mbps | | |
| | Controller | GbE1: Realtek RTL8111E-VB-GR 10/100/1000Mbps, GbE2: Realtek RTL8111E-VB-GR 10/100/1000Mbps | | |
| | Connector | 2 RJ45 on Rear I/O | | |
| Audio | Chipset | Realtek ALC892, High Definition Audio (HD), Line-in, Line out, Mic-in | | |
| | Amplifier | Optional via MIOe | | |
| WatchDog Timer | | Output System reset, Programmable counter from 1 ~ 255 minutes/ seconds | | |
| Storage | CFast | 1 | | |
| | mSATA | Supports either mSATA or full size miniPCIe, selected by BIOS, default support miniPCIe | | |
| | SATA | 2, up to 3Gb/s (300 MB/s) | | |
| Rear I/O | Ethernet | 2 | | |
| | VGA | 1 | | |
| | HDMI | 1 | | |
| | USB | 4 x USB 2.0 | | |
| | LED | Power, HDD | | |
| | DC Jack | 1 (Supported only on MIO-5270S-S0A1E & MIO-5270D-S0A1E) | | |
| Internal I/O | USB | 2 x USB 2.0 | | |
| | Serial | 3 x RS-232 from COM1/3/4, 1 x RS-232/422/485 from COM2 with auto flow control (ESD protection for RS-232: Air gap ±15kV, Contact ±8kV) | | |
| | SMBus | 1 | | |
| | GPIO | 8-bit general purpose input/output | | |
| Expansion | MiniPCIe | 1 x Full-size | | |
| | MIOe | SMBus, 3 x USB2.0, LPC, 4 x PCIe x1, line out, DisplayPort (optional), +5 Vsb/+12 Vsb power, Power On, Rest | | |
| Power | Power Type | Single 12V DC power input | | |
| | Power Supply Voltage | Supports single 12V input, ± 10% | | |
| | Power Consumption (Typical) | MIO-5270S-S0A1E | 0.59 A @ 12 V (7.08 W) | |
| | | MIO-5270D-S0A1E | 0.53 A @ 12 V (6.36 W) | |
| | | MIO-5270D-S6A1E | 0.65 A @ 12 V (7.8 W) | |
| | Power Consumption (Max, test in HCT) | MIO-5270S-S0A1E | 0.8 A @ 12 V (9.6 W) | |
| | | MIO-5270D-S0A1E | 0.82 A @ 12 V (9.84 W) | |
| MIO-5270D-S6A1E | | 1.35 A @ 12 V (16.2 W) | | |
| Power Management | ACPI | | | |
| Battery | Lithium 3 V / 210 mAh | | | |
| Environment | Operational | 0 ~ 60° C (32 ~ 140° F) (Operational humidity: 40° C @ 95% RH Non-Condensing) | | |
| | Non-Operational | -40° C ~ 85° C and 60° C @ 95% RH Non-Condensing | | |
| Physical Characteristics | Dimensions (L x W) | 146 x 102 mm (5.7" x 4"), same as 3.5" | | |
| | Weight | 0.78 kg (1.72 lb), weight of total package | | |
| | Total Height | 34.5 mm | | |

Block Diagram



note 1: Supported by request

Ordering Information

| Part No. | CPU | L2 Cache | Memory | LVDS | VGA & HDMI | GbE | Audio | RS-232/422/485 | RS-232 | USB 2.0 | SATA | CFast | Mini PCIe | MIOe | Power Connector | Thermal Solution | Operational Temp. |
|--------------------|-------------------|----------|------------|--------|------------|-----|-------|----------------|--------|---------|------|-------|-----------|------|-----------------|------------------|-------------------|
| MIO-5270S-S0A1E | AMD T40R 1.0G SC | 512 KB | SO-DIMM | 48-bit | Yes | 2 | Yes | 1 | 3 | 6 | 2 | 1 | 1 | Yes | DC Jack | Passive | 0 - 60° C |
| MIO-5270D-S0A1E | AMD T40E 1.0G DC | 512 KB | SO-DIMM | 48-bit | Yes | 2 | Yes | 1 | 3 | 6 | 2 | 1 | 1 | Yes | DC Jack | Passive | 0 - 60° C |
| MIO-5270D-S6A1E | AMD T56N 1.65G DC | 1 MB | SO-DIMM | 48-bit | Yes | 2 | Yes | 1 | 3 | 6 | 2 | 1 | 1 | Yes | 2x2 type | Active | 0 - 60° C |
| MIO-5270DZ-2GS0A1E | AMD T40E 1.0G DC | 512 KB | 2GB bundle | 48-bit | Yes | 2 | Yes | 1 | 3 | 6 | 2 | 1 | 1 | Yes | DC Jack | Passive | -20 - 80° C |
| MIO-5270DZ2GS0A1E | AMD T40E 1.0G DC | 512 KB | 2GB bundle | 48-bit | Yes | 2 | Yes | 1 | 3 | 6 | 2 | 1 | 1 | Yes | DC Jack | Passive | -40 - 85° C |

Note: Passive = fanless; Active = with fan

Note: Wide temperature range version has been bundled with industrial-grade memory module.

Packing List

| Part No. | Description | Quantity |
|----------------|---|----------|
| | MIO-5270 SBC | |
| | Startup Manual | |
| | Utility CD | |
| 1700006291 | SATA1 cable 7P/ 7P 30cm C=R 180/90 | 1 |
| 1700018785 | SATA Power Cable 35cm | 1 |
| 1700019435 | COM1 RS-485 D-SUB 9P (M)/1*5P 1.25 25cm cable | 1 |
| 1701200220 | COM RS232 Cable 2*10P-2.0/D-SUB 9P (M)*2 22CM | 2 |
| 1700019584 | Audio Cable 2*5P-2.0/ JACK*3 20cm | 1 |
| 9689000002 | mini Jumper pack | 1 |
| 1960053507N001 | Heatsink (137 x 84 x 25 mm) for T40R/ T40E series | |
| 1960053508N001 | Cooler (137 x 84 x 25 mm) for T56N series | |

Optional Accessories

| Part No. | Description |
|----------------|--|
| 1960054266T001 | Heat spreader for MIO-5270 (137 x 84.2 x 16.7mm) |
| 1700006291 | SATA2 cable 7P/ 7P 30cm C=R 180/90 |
| 1703100260 | Internal USB cable |
| 1757003934 | Adaptor 100-240V 60W 12V 5A W/O PFC |

Embedded OS/API

| Embedded OS/API | Description |
|-----------------|-----------------------------|
| 2070010844 | WES2009 MIO-5270 V4.0 24MUI |
| 2070010845 | WES7E SP1 MIO-5270 V5.1 ENG |
| Linux | Ubuntu 12.04 |
| Software API | iManager 2.0 |

Rear I/O View



MIO-5270S-S0A1E
MIO-5270D-S0A1E

MIO-5270D-S6A1E

Memory Compatible List

| Brand | Size | Speed | Type | ECC | Vendor PN | Memory |
|-----------|------|-----------|-------------|-----|----------------------------------|-------------------------------|
| Transcend | 1GB | DDR3 1066 | SODIMM DDR3 | N | TS128MSK64V1U/ TS2KSU28200-1S | SEC K4B1G0846D-HCF8(128x8) |
| | 1GB | DDR3 1066 | SODIMM DDR3 | N | TS128MSK64V1U | SEC HCH9 K4B1G0846D(128x8) |
| | 2GB | DDR3 1066 | SODIMM DDR3 | N | TS256MSK64V1U | SEC K4B1G0846D-HCF8(128x8) |
| | | | | | TS5KSU28400-1S | |
| | 2GB | DDR3 1066 | SODIMM DDR3 | N | TS128MSK64V1U | SEC HCH9 K4B1G0846D (128x8) |
| Apacer | 4GB | DDR3 1066 | SODIMM DDR3 | N | TS7KSN28420-1Y | HYNIX H5TQ2G83BFR (256x8) |
| | 1GB | DDR3 1066 | SODIMM DDR3 | N | 78.02GC3.420 | ELPIDA J1108BDBG-DJ-F (128x8) |
| | 2GB | DDR3 1066 | SODIMM DDR3 | N | 78.A2GC3.421 | ELPIDA J1108BDBG-AE-E(128x8) |
| Kingston | 4GB | DDR3 1066 | SODIMM DDR3 | N | 78.B2GC8.AF1 | HYNIX H5TQ2G83BFR (256x8) |
| | 2GB | DDR3 1066 | SODIMM DDR3 | N | KVR1066D3S7/2G | |
| DSL | 1GB | DDR3 1066 | SODIMM DDR3 | N | | |
| | 4GB | DDR3 1066 | SODIMM DDR3 | N | D3SH56082XH18AB | |
| Micron | 1GB | DDR3 1066 | SODIMM DDR3 | N | MT8JSF12864HZ-1G1F1 | |
| Samsung | 2GB | DDR3 1066 | SODIMM DDR3 | N | M471B5673DH1-CF8 | |
| G.SKILL | 4GB | DDR3 1066 | SODIMM DDR3 | N | F3-8500CL7S-4GBSQ | |
| Transcend | 1GB | DDR3 1333 | SODIMM DDR3 | N | TS128MSK64V3U | |
| | 2GB | DDR3 1333 | SODIMM DDR3 | N | TS256MSK64V3U | |
| | 4GB | DDR3 1333 | SODIMM DDR3 | N | TS512MSK64V3N | |
| Apacer | 1GB | DDR3 1333 | SODIMM DDR3 | N | 78.02GC6.420 | ELPIDA J1108BDBG-DJ-F (128x8) |
| | 2GB | DDR3 1333 | SODIMM DDR3 | N | 78.A2GC6.421 | ELPIDA J1108BDBG-DJ-F (128x8) |
| | 4GB | DDR3 1333 | SODIMM DDR3 | N | 78.B2GC9.AF1 | |
| DSL | 1GB | DDR3 1333 | SODIMM DDR3 | N | D3SE28081XH15AA | |
| | 2GB | DDR3 1333 | SODIMM DDR3 | N | D3SE28082XH15AA | |
| | 4GB | DDR3 1333 | SODIMM DDR3 | N | D3SH56082XH15AA | |
| Kingston | 1GB | DDR3 1333 | SODIMM DDR3 | N | KVR1333D3S9/1G | |
| | 2GB | DDR3 1333 | SODIMM DDR3 | N | KVR1333D3S9/2G | |
| ATP | 4GB | DDR3 1333 | SODIMM DDR3 | N | AW12M64F8BKH9S | |