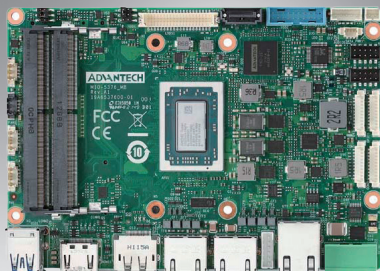


# MIO-5376

## AMD Ryzen™ Embedded R2000 Series 3.5" SBC

NEW



### Features

- AMD Ryzen™ Embedded R2000 Processor with Quad Cores, cTDP 12W/15W/25W
- Dual Channel DDR4-2667 up to 32GB
- 3 simultaneous displays: LVDS/HDMI/DP
- 3 GbE (2 support optional PoE, 802.3af), CAN Bus, DC-in 12-24V
- Expansion: M.2 E-Key/B-Key/M-Key (supports NVMe)
- Supports iManager & Software APIs, WISE-DeviceOn

#### Software APIs:



#### Utilities:



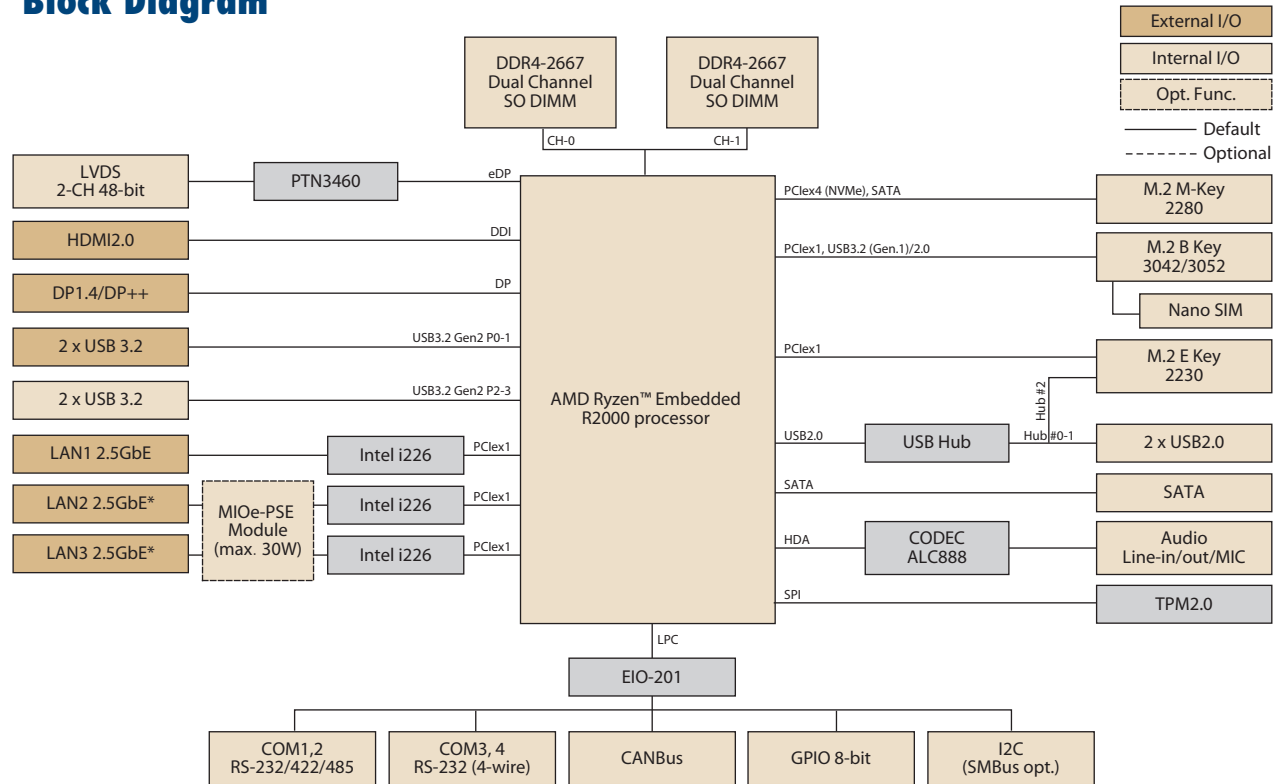
ubuntu Windows 10 iManager WISE-DeviceOn CE FCC

### Specifications

|              |                      |                                                                                                                    |                                      |
|--------------|----------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Platform     | Processor            | R2314 SoC with AMD Radeon™ Graphics                                                                                | R2514 SoC with AMD Radeon™ Graphics* |
|              | Max. Frequency       | 3.50 GHz                                                                                                           | 3.70 GHz                             |
|              | Base Frequency       | 2.1 GHz                                                                                                            | 2.1 GHz                              |
|              | Core/Tread           | 4/4                                                                                                                | 4/8                                  |
|              | CPU cTDP/ TDP        | 12W/15W/25W                                                                                                        |                                      |
|              | Chipset              | AMD Ryzen™ Embedded R2000 processor                                                                                |                                      |
| Memory       | BIOS                 | AMI EFI 256Mbit                                                                                                    |                                      |
|              | Technology           | DDR4-2667                                                                                                          |                                      |
|              | Max. Capacity        | Up to 32GB                                                                                                         |                                      |
|              | Channel/Socket       | Dual Channels / 2 Sockets                                                                                          |                                      |
| Graphics     | ECC Support          | No                                                                                                                 |                                      |
|              | Controller           | Integrated AMD Radeon Graphics                                                                                     |                                      |
|              |                      | R2314: 6 Computing Units (CUs)                                                                                     |                                      |
|              | LCD                  | 1 x LVDS: Dual Channel 18/24-bit, up to 1920 x 1200                                                                |                                      |
|              | HDMI                 | 1 x HDMI 2.0b, up to 4Kx2Kx24bpp@60Hz                                                                              |                                      |
|              | DP                   | 1 x DP1.4a, up to 4096x2304x36bpp@60Hz or 5120x3200x24bpp@60Hz                                                     |                                      |
| Display I/F  | Multiple Display     | 3 simultaneous displays with each display interface combinations                                                   |                                      |
|              | Ethernet             | 3 x GbE, Intel i226                                                                                                |                                      |
|              | HDMI/DP              | 2 support optional PSE compliant to 802.3af (15.4W per port) with external PSE power module (Model name: MIOe-PSE) |                                      |
|              | USB3.2               | 1/1                                                                                                                |                                      |
|              | LED                  | 2 x USB3.2 Gen. 2x1 10Gbps                                                                                         |                                      |
|              | Power Connector      | Power status, SATA R/W                                                                                             |                                      |
| External I/O | Power Connector      | 2-pin phoenix connector                                                                                            |                                      |
|              | SATA                 | 1 x SATA III 6.0 Gbps                                                                                              |                                      |
|              | USB3.2               | 2                                                                                                                  |                                      |
|              | USB2.0               | 2                                                                                                                  |                                      |
|              | Serial Bus           | I2C, SMBus* (Option)                                                                                               |                                      |
|              | COM Port             | 2 x RS-232/422/485, 2 x RS-232 (4-wire)                                                                            |                                      |
|              | GPIO                 | 8-bit general purpose input output I/O                                                                             |                                      |
|              | Audio                | Realtek ALC888, Line-in/Line-out/MIC                                                                               |                                      |
|              | Inverter             | 12V/5V/3.3V selectable                                                                                             |                                      |
|              | CAN Bus              | 1 x CANBus 2.0                                                                                                     |                                      |
|              | Fan                  | 4-wire smart fan                                                                                                   |                                      |
|              | Front Panel Control  | Power-on, Reset, Buzzer, SATA LED, CaseOpen                                                                        |                                      |
| Internal I/O | Watchdog Timer       | 65536 level, 0~65535 sec                                                                                           |                                      |
|              | TPM                  | TPM2.0                                                                                                             |                                      |
|              | iManager 3.0         | SW API for Hardware Monitor, Smart Fan Control, Brightness Control, I2C, GPIO, WDT                                 |                                      |
|              | M.2 E-Key            | 1 x E-Key 2230 (PCIe x1, USB2.0)                                                                                   |                                      |
| Expansion    | M.2 B-Key            | 1 x B-Key 3042/ 3052 (PCIe x1, USB3.2/ 2.0) w/ Nano-SIM                                                            |                                      |
|              | M.2 M-Key            | 1 x M-Key 2280 (PCIe Gen3x4 SSD, SATA III)                                                                         |                                      |
|              | Supply Voltage       | Vin: DC 12V-24V ±10%; RTC Battery: Lithium 3V/210mAH                                                               |                                      |
| Power        | Connector            | 2-pin phoenix connector                                                                                            |                                      |
|              | Power Management     | AT, ATX                                                                                                            |                                      |
|              | Max. Consumption     | 29.59W (12V), 30.42W (24V)                                                                                         | 41.19W (12V), 43.23W (24V)           |
|              | Idle Consumption     | 16.95W (12V), 18.11W (24V)                                                                                         | 18.10W (12V), 18.70W (24V)           |
| Environment  | Temperature          | Operating: Standard: 0 ~ 60 °C (32 ~ 140 °F)<br>Storage: 0 ~ 60 °C (32 ~ 140 °F)                                   |                                      |
|              | Humidity             | Operating: 40 °C @ 95% relative humidity, non-condensing<br>Storage: 60 °C @ 95%relative humidity, non-condensing  |                                      |
|              | Vibration Resistance | 3.5 Grms                                                                                                           |                                      |
|              | Certification        | EMC                                                                                                                | CE, FCC Class B                      |
| Mechanical   | Dimensions           | 146 x 102 mm (5.7" x 4")                                                                                           |                                      |

\*Note: Support by request

## Block Diagram



\*Optional PoE LAN requires external MIOe-PSE module, which provides dual 15.4W port (LAN2 & LAN3) or single port 30W (LAN2)

## Ordering Information

| Part Number    | CPU         | TDP | Max. Freq | Core | Gbe | USB 3.2 | USB 2.0 | RS232/422/485 | RS232 | TPM2.0 | Thermal solution | Operating Temp |
|----------------|-------------|-----|-----------|------|-----|---------|---------|---------------|-------|--------|------------------|----------------|
| MIO-5376R-P5A1 | Ryzen R2314 | 15W | 3.5GHz    | 4    | 3   | 4       | 2       | 2             | 2     | Y      | Passive Heatsink | 0 ~ 60 °C      |

## Packing List

| Part No.       | Description                                | Quantity |
|----------------|--------------------------------------------|----------|
|                | MIO-5376 SBC                               | 1        |
| 2046537600     | Startup Manual                             | 1        |
| 1970005548T001 | MIO-5376 Passive Heatsink for 15W or below | 1        |
| 1700006291     | SATA 7P/SATA 7P 30cm C=R 180/90            | 1        |
| 1700031583-01  | SATA power 15P/1*2P-2.0 35cm               | 1        |
| 1700032181-01  | Cable 20P-2.0/USB-A 9P(F)x2 35CM           | 1        |
| 1700030406-01  | USB2.0 2*5P-2.0/USB-A 4P(F)*2 20cm MIO     | 1        |
| 1700030404-01  | COM1, COM2 D-SUB 9P(M)/1*10P-1.25 20cm MIO | 2        |
| 1700031582-01  | COM3,COM4 D-SUB 9P(M)/1*5P-1.25 20cm       | 2        |
| 1700019584-01  | Audio 2*5P-2.0/Audio JACK*3 20cm           | 1        |

## Optional Accessories

| Part No.       | Description                                      |
|----------------|--------------------------------------------------|
| 1970005615T001 | Heat spreader                                    |
| MIOE-PSE-DPA1  | MIOe-PSE Dual PSE Ports Power Module (15.4W x 2) |
| 1970005512T001 | MIO-5376 Active Cooler for 25W                   |

## Embedded OS/API

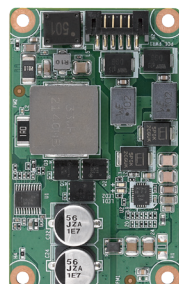
| OS           | Part No.            | Description                                                          |
|--------------|---------------------|----------------------------------------------------------------------|
| WIN10        | 20706WX1ES0031      | 64-bit (UEFI mode only)                                              |
| Ubuntu 22.04 | 20706U22DS0002      | Ubuntu Desktop 22.04 LTS 64-bit Image & License Sticker for MIO-5376 |
| Software API | Download by website | SUSI v4.0                                                            |

## Rear I/O View



# Compatible Expansion Boards

## MIOe-PSE



### Specifications

|                             |                                                                                                                   |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------|
| Output DC Voltage           | 50V                                                                                                               |
| Input DC Voltage            | 12-24V                                                                                                            |
| Power Sourced at PSE module | 15.4W / 30W per port                                                                                              |
| Power at PD (End-point)     | 12.95W / 25.5W per port                                                                                           |
| PoE Standard                | IEEE 802.3 at                                                                                                     |
| Operating temperature       | -40 ~ 85 °C (-40 ~ 185 °F)                                                                                        |
| Humidity                    | Operating: 40 °C @ 95% relative humidity, non-condensing<br>Storage: 60 °C @ 95%relative humidity, non-condensing |
| Vibration Resistance        | 3.5 Grms                                                                                                          |
| EMC                         | CE, FCC Class B                                                                                                   |
| Dimensions                  | 72.1 x 44.0 x 1.6 mm                                                                                              |

### Ordering Information

| P/N           | Description                       |
|---------------|-----------------------------------|
| MIOE-PSE-DPA1 | MIOe-PSE PoE Module A1 Dual 15.4W |
| MIOE-PSE-SPA1 | MIOe-PSE PoE Module A1 Single 30W |