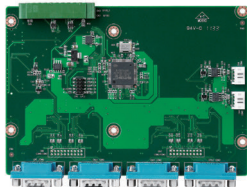


# MI/O Extension Modules

## MI0e-210

4 x RS232/422/485,  
2 x RS422/485, 8-bit GPIO



CE FCC

### Specifications

| General               |  |
|-----------------------|--|
| Bus Interface         | MI0e LPC   |
| Ports                 | 4 x RS232/422/485, 2 x RS422/485   |
| GPIO                  | 8-bit with 3.3V level  |
| Communications        |  |
| Data Bits             | 5, 6, 7, 8   |
| Data Signals          | RS-422: TxD+, TxD-, RxD+, RxD-<br>RS-485: DATA+, DATA-<br>RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND |
| IRQ                   | Depends on MI/O CPU Board  |
| Parity                | even, odd, sticky or no  |
| Speed                 | 50 to 115.2k Baud  |
| Stop Bits             | 1, 1.5, 2  |
| Protection            |  |
| EFT Protection        | Air gap ±15kV, contact ±8kV  |
| Compatibility         |  |
| Rear I/O              | MI/O-Compact   |
| Mechanical            | MI/O-Compact   |
| Function              | MI/O-Compact*, MI/O-Ultra*   |
| Environment           |  |
| Dimensions (L x W)    | 146 x 102 mm (5.7" x 4")   |
| Weight                | 0.186 kg (0.41 lb)   |
| Operating Humidity    | 0 - 90 % relative humidity, non-condensing   |
| Operating Temperature | 0 - 60° C (32 - 140° F)  |
| Storage Temperature   | -40° C - 85° C and 60° C @ 95% RH Non-Condensing   |
| Power                 |  |
| Power Supply Voltage  | Supported by MI/O Extension SBC  |

\* Requires customized BIOS for MI/O CPU board support.

### Ordering Information

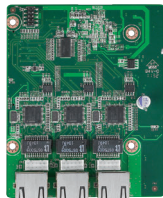
| P/N            | Description                                  |
|----------------|--|
| MI0e-210-D6A1E | 4 x RS232/422/485, 2 x RS422/485, 8-bit GPIO |

### Accessories

| Part No.   | Description                     | Quantity |
|------------|---------------------------------|----------|
| 1703040157 | RS-422/485 W/D-SUB COM 4P 15 cm | 2        |

## MI0e-220

3 x Intel® Gigabit Ethernet



CE FCC

### Specifications

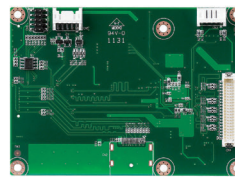
| General                      |  |
|------------------------------|--|
| Bus Interface                | MI0e PCI Express                                 |
| Chipset                      | Intel® 82583V Gigabit Ethernet Controller        |
| PCIe Switch                  | PLX PEX8605                                      |
| Port                         | 3 x RJ45   |
| Speed                        | 10/100/1000 Mbps                                 |
| Compatibility                |  |
| Rear I/O                     | MI/O-Compact                                     |
| Mechanical                   | MI/O-Compact                                     |
| Function                     | MI/O-Compact, MI/O-Ultra                         |
| Mechanical and Environmental |  |
| Dimensions (L x W)           | 102 x 83 mm (4" x 3.2")                          |
| Weight                       | 0.182 kg (0.401 lb)                              |
| Operating Temperature        | Standard operating: 0 - 60° C (32 - 140° F)      |
| Operating Humidity           | 0% - 90% relative humidity, non-condensing       |
| Storage Temperature          | -40° C - 85° C and 60° C @ 95% RH Non-Condensing |
| Power                        |  |
| Power Supply Voltage         | Supported by MI/O Extension SBC                  |

### Ordering Information

| P/N            | Description   |
|----------------|---|
| MI0e-220-L3A1E | 3 x Intel® Gigabit Ethernet without PCIe Switch                                 |
| MI0e-220-B3A1E | 3 x Intel® Gigabit Ethernet with PCIe Switch (for MIO-5250 /MIO-5251/ MIO-5271) |

## MI0e-230

48-bit LVDS or DisplayPort<sup>1</sup>,  
2 x USB 2.0



CE FCC

### Specifications

| General                      |   |
|------------------------------|---|
| Bus Interface                | MI0e Displayport & USB 2.0                          |
| Controller                   | Chrontel CH7511                                     |
| Brightness Control           | Supported   |
| USB                          | 2 x USB 2.0   |
| Compatibility                |   |
| Rear I/O                     | MI/O-Ultra  |
| Mechanical                   | MI/O-Compact, MI/O-Ultra                            |
| Function                     | MI/O-Compact <sup>2</sup> , MI/O-Ultra <sup>2</sup> |
| Mechanical and Environmental |   |
| Dimensions (L x W)           | 100 x 72 mm (3.9" x 2.8")                           |
| Weight                       | 0.084 kg (0.185 lb)                                 |
| Operating Temperature        | 0 - 60° C (32 - 140° F)                             |
| Operating Humidity           | 0% - 90% relative humidity, non-condensing          |
| Power                        |   |
| Power Supply Voltage         | Supported by MI/O Extension SBC                     |

<sup>1</sup> Support by request

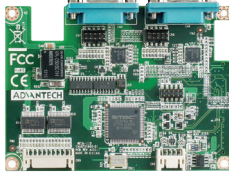
<sup>2</sup> Requires customized BIOS or HW adjustment for MI/O CPU board support.

### Ordering Information

| P/N            | Description                             |
|----------------|---|
| MI0e-230-L0A1E | 48-bit LVDS or DisplayPort, 2 x USB 2.0 |

## MIOe-110

2 x RS-232, 2 x RS-232/422/485 (with power and isolation), 2 x USB 2.0



CE FCC

### Specifications

| General                 |   |
|-------------------------|---|
| Bus Interface           | MIOe LPC/USB  |
| Super I/O               | SCH3106   |
| Rear I/O                |   |
| COM port                | COM1/2: Both at coastline and internal box water, simultaneously<br>COM1: RS-232/422/485 (With isolation, RS-485 with auto flow control).<br>COM2: RS-232/422/485 (Supports wake on ring. Supply 5V/12V power selected by jumper. RS-485 with auto flow control). |
| Internal I/O            |   |
| COM port                | COM3/4: RS-232 (Support wake on ring)   |
| USB 2.0                 | 2   |
| Communications          |   |
| Data Bits               | 5, 6, 7, 8  |
| Data Signals            | RS-422: TxD+, TxD-, RxD+, RxD-<br>RS-485: DATA+, DATA-<br>RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND  |
| IRQ                     | Depends on MI/O CPU Board   |
| Parity                  | even, odd, sticky or no   |
| Speed                   | 50 to 115.2k Baud   |
| Stop Bits               | 1, 1.5, 2   |
| Protection              |   |
| ESD                     | Air gap ±15kV and contact +8kV for all COM ports  |
| Isolation               | 2.5kV for COM1  |
| Compatibility           |   |
| Rear I/O                | MI/O-Ultra  |
| Mechanical              | MI/O-Ultra  |
| Function                | MI/O-Compact*, MI/O-Ultra*  |
| Environment             |   |
| Dimensions              | 100 x 72 mm (3.9" x 2.8")   |
| Weight                  | 0.04 kg (0.09lb), only for board  |
| Operational Temperature | 0 ~ 60° C (32 ~ 140° F)   |
| Operational Humidity    | 40° C @ 95% RH Non-Condensing   |
| Storage Environment     | -40° C ~ 85° C and 60° C @ 95% RH Non-Condensing  |
| Power                   |   |
| Power Supply Voltage    | Supported by MI/O Extension SBC   |

\* Requires customized BIOS for MI/O CPU board support

### Ordering Information

| P/N             | Description  |
|-----------------|--|
| MIOe-110F-00A1E | 2 x RS-232/422/485, 2 x RS-232, w/ isolation, 2 x USB  |
| MIOe-110L-00A1E | 1 x RS-232/422/485, 2 x RS-232, w/o isolation, 2 x USB |

### Accessories

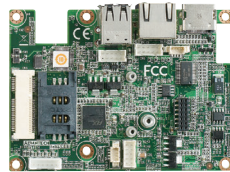
| P/N        | Description       | Quantity |
|------------|-------------------|----------|
| 1700018999 | COM3/4 cable 22cm | 1        |

### Optional Accessories

| P/N        | Description                         |
|------------|-------------------------------------|
| 1700019414 | COM1/2 internal cable 30cm          |
| 1700019071 | 2 ports USB cable w/o bracket, 12cm |

## MIOe-120

2 x GbE, HDMI, Mini PCIe, SIM holder, speaker out, LPC, 2 x USB 2.0



CE FCC

### Specifications

| General                      |   |
|------------------------------|---|
| Bus Interface                | MIOe PCI Express/ USB/ LPC/ Audio line-out  |
| Ethernet controller          | GbE Intel® 82583V   |
| PCIe Switch                  | PLX PEX8605   |
| USB Hub Controller           | Terminus FE1.1 USB 2.0 4-port hub   |
| Rear I/O                     |   |
| GbE                          | 1 (10/100/1000 Mbps), both at coastline and internal box water, simultaneously                        |
| USB 2.0                      | 2 (Both at coastline and internal box water, simultaneously)  |
| HDMI                         | 1 (by request, only for MIO-2261)   |
| Internal I/O                 |   |
| GbE                          | 1 (10/100/1000 Mbps)  |
| Speaker out                  | 1 with amplifier (Max 2.2W/ch stereo into a 3Ω load )   |
| LPC                          | 1 (support extra four COM ports by PCA-COM232-00A1E or PCA-COM485-00A1E, TPM module by PCA-TPM-00A1E) |
| Expansion                    |   |
| Mini PCIe                    | 1 (full size, with SIM holder, including of USB interface)  |
| Compatibility                |   |
| Rear I/O                     | MI/O-Ultra  |
| Mechanical                   | MI/O-Compact, MI/O-Ultra  |
| Function                     | MI/O-Compact*, MI/O-Ultra*  |
| Mechanical and Environmental |   |
| Dimensions (L x W)           | 100 x 72 mm (3.9" x 2.8")   |
| Weight                       | 0.04 kg (0.09lb), only for board  |
| Operational Temperature      | Standard operating: 0 ~ 60° C (32 ~ 140° F)   |
| Operational Humidity         | 40° C @ 95% RH Non-Condensing   |
| Storage Temperature          | -40° C ~ 85° C and 60° C @ 95% RH Non-Condensing  |
| Power                        |   |
| Power Supply Voltage         | Supported by MI/O Extension SBC   |

- \* 1. HDMI: Only for MIO-2261, supported by request
- 2. LPC: Supported by OEM BIOS for PCA-COM232-00A1E, PCA-COM485-00A1E, and PCA-TPM-00A1E
- 3. MIO-5250 doesn't support MIOe-120L

### Ordering Information

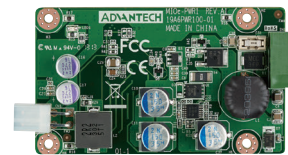
| P/N             | Description  |
|-----------------|--|
| MIOe-120F-00A1E | 2 x GbE w/ PCIe switch, 2 x USB, Mini PCIe, SIM holder, speaker-out with amplifier, LPC  |
| MIOe-120L-00A1E | 1 x GbE w/o PCIe switch, 2 x USB, Mini PCIe, SIM holder, speaker-out with amplifier, LPC |

### Optional Accessories

| P/N              | Description                                |
|------------------|--|
| 1700019001       | 1 x LAN cable, 15cm                        |
| 1700019071       | 2 ports USB cable w/o bracket, 12cm        |
| PCA-COM232-00A1E | 4 x RS-232 extension module, 31.5x48mm     |
| PCA-COM485-00A1E | 4 x RS-422/485 extension module, 31.5x48mm |
| PCA-TPM-00A1E    | TPM module, 31.5 x 48 mm                   |

## MIOe-PWR1

12-24V DC to DC Power Module  
MI/O-Chassis compliant



UL CB  
CE FCC

### Specifications

| General                      |  |
|------------------------------|--|
| Input Voltage                | 12 to 24 V <sub>DC</sub> ±5%               |
| Output Voltage               | 12V ±10%                                   |
| Output Current               | Max. 5A                                    |
| Protection                   | OVP, OCP, Anti-reverse                     |
| Connector type               | Input: Phoenix 2pin<br>Output: ATX 2x2pin  |
| Mechanical and Environmental |  |
| Dimensions (L x W)           | 90 x 53 mm (3.5" x 2.1")                   |
| Operating Temperature        | 0 ~ 60° C (32 ~ 140° F)                    |
| Weight                       | 0.084 kg (0.185 lb)                        |
| Operating Humidity           | 0% ~ 90% relative humidity, non-condensing |

### Ordering Information

| P/N              | Description                        |
|------------------|------------------------------------|
| MIOe-PWR1-00A1E  | 12-24V DC to DC power module       |
| MIOe-PWR1Z-00A1E | 12-24V DC power module -20 ~ 80° C |

### Accessories

| Part No.      | Description                         |
|---------------|-------------------------------------|
| 1700021072-01 | Power cable 2*2P-4.2/2*2P-4.2, 10cm |