

Pinout

Using 96 position (3x32) DIN 41612 connectors; right angle male on expansion cards, vertical female on the backplane side. The management card uses a 48 position (3x16) DIN 41612 (C2) right angle male connector, with the corresponding vertical female on the backplane side.

CPU Board

The pinout of the CPU board’s expansion connector is documented on the [CPU board expansion page](#).

Management Card

This provides power input to the rest of the backplane, and provides connectors for the mixed audio from the backplane.

| | A | B | C |
|----|------|------|------|
| 1 | +5V | +5V | +5V |
| 2 | +5V | +5V | +5V |
| 3 | +5V | +5V | +5V |
| 4 | GND | GND | GND |
| 5 | +12V | +12V | +12V |
| 6 | GND | GND | GND |
| 7 | | GND | |
| 8 | | GND | |
| 9 | | GND | |
| 10 | | GND | |

| | | | |
|----|---------|-----|---------|
| 11 | | GND | |
| 12 | /EXTRST | GND | |
| 13 | | GND | I2C_IRQ |
| 14 | I2C_SCL | GND | I2C_SDA |
| 15 | | GND | |
| 16 | SNDR | GND | SNDL |

Any empty cells are not filled in are considered reserved for future use, and should be left unconnected.

Remarks

1. SNDL/SNDR refers to mixed audio from all cards (CPU + expansion) in the system.
2. EXTRST: when asserted, the CPU board (and with it, all peripherals on the backplane) are reset. This is equivalent to pushing the reset button on the CPU board, if it has one.

Peripheral

These connectors are provided by peripherals; they're 96-position, 3 row type C DIN 41612 connectors. They shall be right angle, male type.

| | A | B | C |
|---|----------------------|-----------------------|----------------------|
| 1 | +5V | GND | +12V |
| 2 | +5V | GND | +12V |
| 3 | I2C_SCL ¹ | /I2C_IRQ ¹ | I2C_SDA ¹ |
| 4 | GND | GND | GND |
| 5 | GND | D8 | D13 |
| 6 | D9 | D11 | D15 |
| 7 | D10 | D14 | D12 |

| | | | |
|-----------|---------------------|-------------------|---------------------|
| 8 | D7 | D5 | GND |
| 9 | D6 | GND | D3 |
| 10 | GND | D4 | D1 |
| 11 | D2 | D0 | GND |
| 12 | GND | GND | A22 |
| 13 | A23 | GND | A19 |
| 14 | GND | A21 | A17 |
| 15 | A20 | A15 | A18 |
| 16 | A13 | A16 | A12 |
| 17 | A14 | A10 | GND |
| 18 | A11 | GND | A8 |
| 19 | GND | A9 | A6 |
| 20 | A7 | A4 | A2 |
| 21 | A5 | A3 | A1 |
| 22 | R/W | /LDS | /UDS |
| 23 | GND | /DTACK | /AS |
| 24 | CLK | GND | |
| 25 | FC1 | FC0 | FC2 |
| 26 | | | |
| 27 | /IRQ_IN | /DETECT | GND |
| 28 | /IRQ_OUT | /BG | /HALT ² |
| 29 | /RESET ² | /BR ² | /BGACK ² |
| 30 | /IACK | /IRQ ² | /BERR ² |

| | | | |
|-----------|------|-----|------|
| 31 | GND | GND | GND |
| 32 | SNDR | GND | SNDL |

Remarks

1. Pulled up to +5V by backplane
2. These signals should be driven as open drain; they're pulled up by either the backplane or CPU board.
3. If the card doesn't provide sound, tie SNDL/SNDR to ground through a 100kΩ resistor.
4. Cards should tie /DETECT to GND so that the backplane can detect which slots are occupied, even if the card doesn't have anything on its I²C bus.

Interrupt Arbitration

Peripheral cards arbitrate interrupt priority in slot order. This works by means of a daisy-chained interrupt request line from each slot to the next. The first slot has the daisy chain input tied permanently high. Each peripheral outputs whether it has a pending interrupt on these pins, and then asserts the shared interrupt line. When an interrupt acknowledge cycle takes place, the peripheral with the highest priority – that is, whichever has an `/IRQ_IN` that's deasserted – responds.

When its interrupt conditions are cleared (from within its ISR,) it will deassert `/IRQ_OUT` and `/IRQ`. If there's a lower priority card requiring attention, the interrupt will fire again and it will respond. Otherwise, the processor returns to normal execution.

The `/IRQ_IN` pin on cards is pulled down to GND with a 1MΩ resistor on the backplane for all slots to prevent erroneous interrupt behavior if cards aren't inserted one after another in the backplane, e.g. the interrupt priority chain is broken. Cards can drive these pins either directly, or open drain, but in the latter case, it must provide the required pull up resistors. For open drain driving, a pull up value of at least 47kΩ is suggested.

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