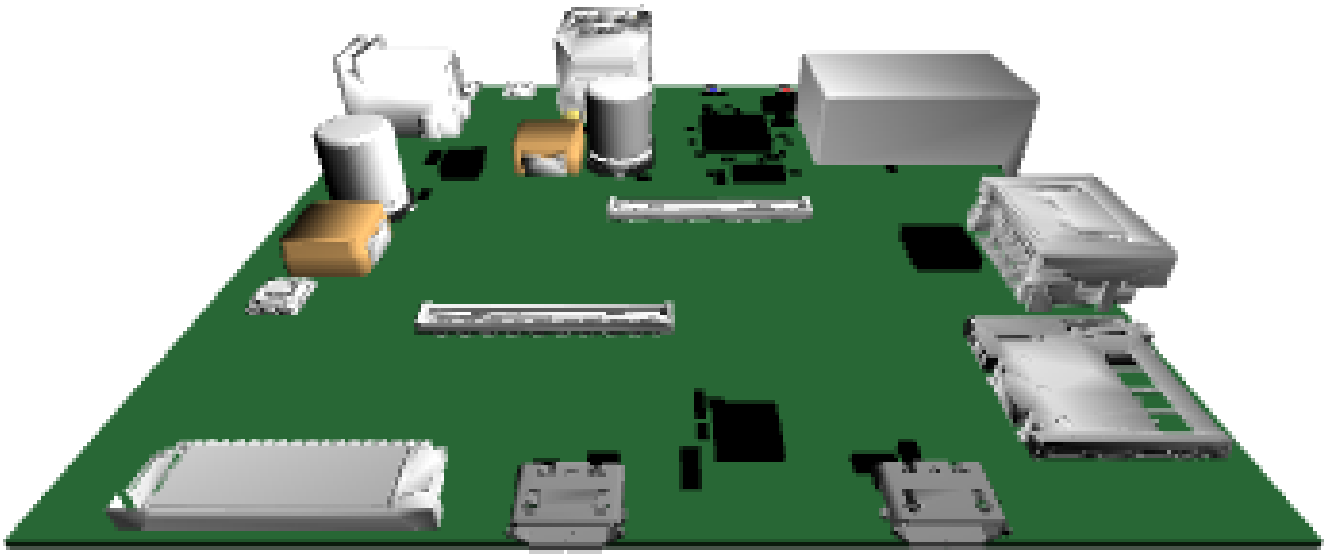
Intel Joule Module Workstation



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Board Description

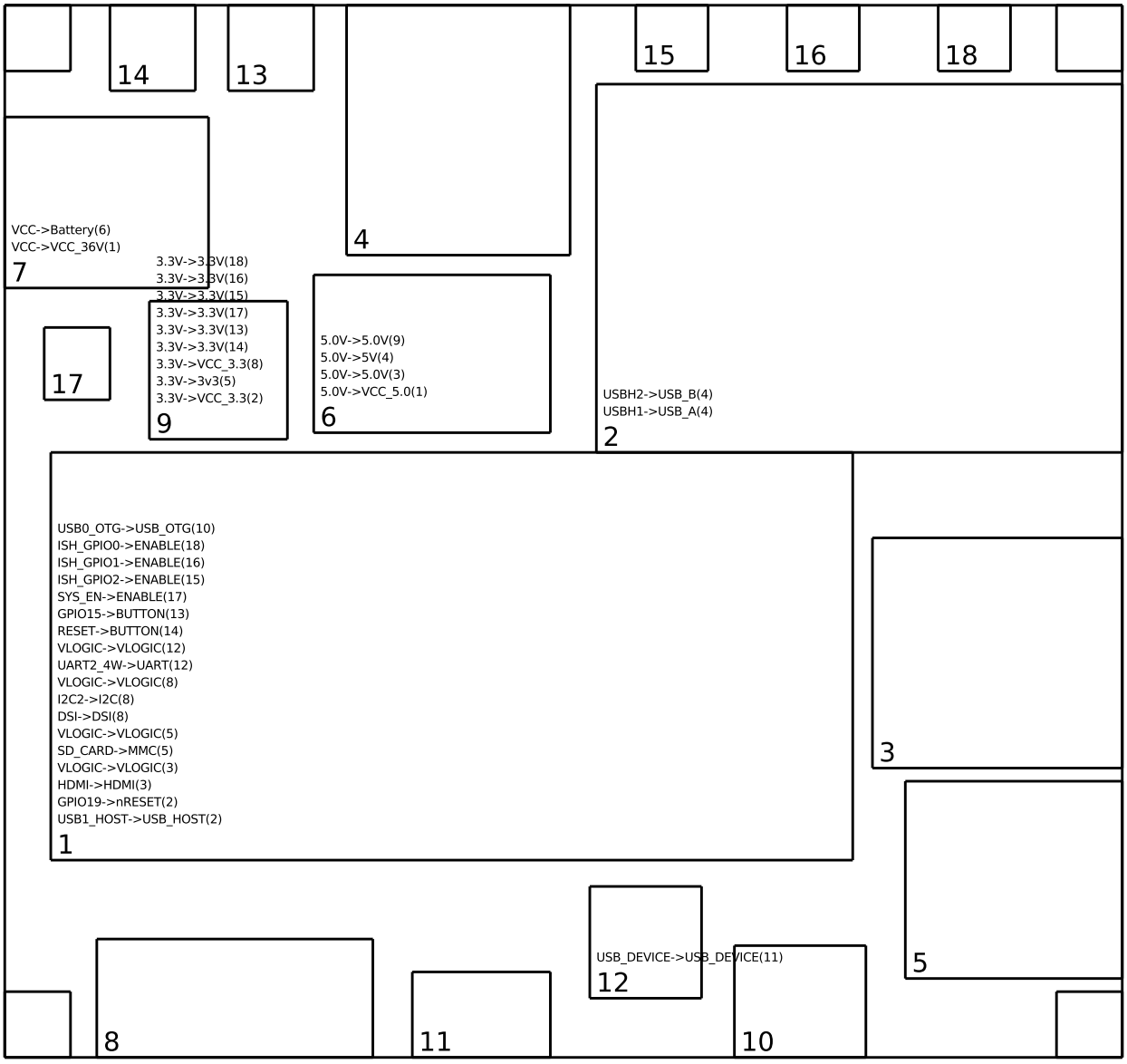
Intel Joule Module Workstation with HDMI, DSI, USB-Ethernet

Board Dimensions

8.5cm x 8.0cm

Contents

1 Modules on Board



1.1 COM Connectors

1.1.1 Intel Joule Module Connector (v7) (1)

- VCC_5.0 from 5V/5A Regulator (6)
- VCC_36V from Barrel Connector (20V 3A) (7)

The Tesla connectors provide the following outputs:

- RESET to Tactile Switch (14)

- GPIO15 to Tactile Switch (13)
- USB0_OTG to Micro-AB USB (10)
- SD_CARD to microSD slot (5)
- HDMI to Native HDMI receptacle (3)
- UART2_4W to USB-UART (12)
- ISH_GPIO2 to Blue LED (15)
- ISH_GPIO1 to Red LED (16)
- ISH_GPIO0 to Yellow LED (18)
- GPIO19 to USB-Ethernet Module with Hub (2)
- SYS_EN to Green LED (17)
- VLOGIC to:
  - Native HDMI receptacle (3)
  - microSD slot (5)
  - COM to DSI Connector (8)
  - USB-UART (12)
- DSI to COM to DSI Connector (8)
- USB1_HOST to USB-Ethernet Module with Hub (2)
- I2C2 to COM to DSI Connector (8)

1.2 Network

1.2.1 USB-Ethernet Module with Hub (v2) (2)

This module offers a 10/100 Base-T Ethernet connection via USB connection to USB1_HOST on Intel Joule Module Connector (1).

Intel Joule Module Connector (1) is also connected to an internal USB Hub.

The module's USB hub also provides a USB_HOST connection to:

- USB_A on Dual Stacked USB Type A (4)
- USB_B on Dual Stacked USB Type A (4)

1.3 Monitors

1.3.1 Native HDMI receptacle (v8) (3)

The HDMI connector provides HDMI video and audio signals to an external display and speakers.

This displays high definition video for HDMI on Intel Joule Module Connector (1).

1.4 USB

1.4.1 Dual Stacked USB Type A (v6) (4)

A dual type-A USB host stacked vertically that allows you to connect USB devices to the board.

It is connected to:

- USBH1 on USB-Ethernet Module with Hub (2)
- USBH2 on USB-Ethernet Module with Hub (2)

1.4.2 Micro-AB USB (v6) (10)

A micro-AB USB port offers USB On-the-Go connectivity. Devices can be connected to your design (e.g., USB peripherals) using a USB OTG cable, or your design can be connected to a host as a device using a micro-B to standard-A cable.

This port is connected to USB0_OTG on Intel Joule Module Connector (1). .

1.4.3 Micro-B Jack (v8) (11)

A USB micro-B port allows your design to connect as a USB device to a USB host.

This module is connected to USB_DEVICE on USB-UART (12).

1.5 Memory

1.5.1 microSD slot (v5) (5)

A Micro SD card slot provides memory to SD_CARD on Intel Joule Module Connector (1).

1.6 Power

1.6.1 5V/5A Regulator (v3) (6)

Takes 6 - 36V input from Barrel Connector (20V 3A) (7) and provides up to 5A at 5V to:

- Intel Joule Module Connector (1)
- Native HDMI receptacle (3)
- Dual Stacked USB Type A (4)
- 3.3V/1.5A Regulator (9)

1.6.2 3.3V/1.5A Regulator (v9) (9)

This DC to DC step down regulator provides a 3.3V DC output at 1.5A needed by certain components on this board. It is capable of accepting an input voltage between 3.1 to 16V DC. Currently, its input is 5V from 5V/5A Regulator (6).

This regulator provides 3.3V to:

- USB-Ethernet Module with Hub (2)
- microSD slot (5)
- COM to DSI Connector (8)
- Tactile Switch (14)
- Tactile Switch (13)
- Green LED (17)
- Blue LED (15)
- Red LED (16)
- Yellow LED (18)

1.7 Power Connectors

1.7.1 Barrel Connector (20V 3A) (v2) (7)

This power jack is compatible with Gumstix 20V/3A DC power adapter using a barrel connector.

This power jack provides 20V to the following modules:

- Intel Joule Module Connector (1)
- 5V/5A Regulator (6)

1.8 Headers

1.8.1 COM to DSI Connector (v5) (8)

The DSI connector is compatible with Raspberry Pi family displays.

The DSI port is connected to DSI on Intel Joule Module Connector (1)

I2C communication is connected to I2C2 on Intel Joule Module Connector (1) .

1.9 Connectivity

1.9.1 USB-UART (v14) (12)

Also known as an FTDI, this USB to UART converter allows a USB connection to the board to behave as a virtual RS232 serial connection. It offers direct and complete access to the system from a development machine.

This USB to UART converter connects a host machine from Micro-B Jack (11) to UART2_4W on Intel Joule Module Connector (1).

1.10 IO

1.10.1 Tactile Switch (v9) (13)

This 4.9 sq. mm light touch switch provides a user input for the signal GPIO15 on Intel Joule Module Connector (1).

1.10.2 Tactile Switch (v9) (14)

This 4.9 sq. mm light touch switch provides a user input for the signal RESET on Intel Joule Module Connector (1).

1.10.3 Blue LED (v14) (15)

This 1608 standard size blue LED provides an indicator for the signal ISH_GPIO2 on Intel Joule Module Connector (1).

1.10.4 Red LED (v11) (16)

This 1608 standard size red LED provides an indicator for the signal ISH_GPIO1 on Intel Joule Module Connector (1).

1.10.5 Green LED (v13) (17)

This 1608 standard size green LED provides an indicator for the signal SYS_EN on Intel Joule Module Connector (1).

1.10.6 Yellow LED (v13) (18)

This 1608 standard size yellow LED provides an indicator for the signal ISH_GPIO0 on Intel Joule Module Connector (1).

1.11 Mechanical

1.11.1 Mounting Hole (2.2mm)

A #0 mounting hole for securing the board with mounting pins.

1.11.2 Mounting Hole (2.2mm)

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2 Module Connections Graph

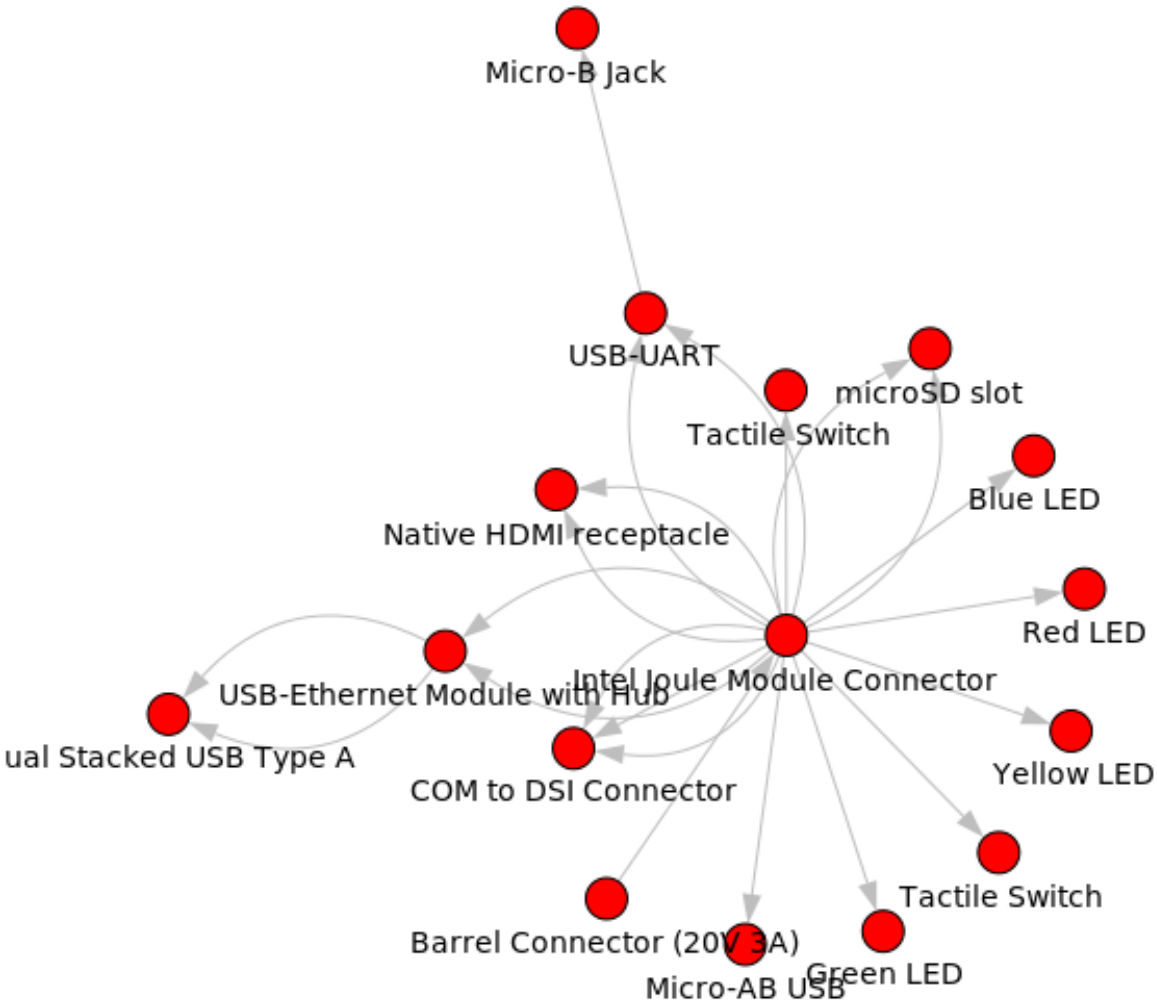

Figure 1: excludes power modules

3 Module Power Graph