

Intel® Joule™ Module

Maker. Innovator. Entrepreneur.



Introduction

This System on a Module combines a 64-bit, Quad-Core compute engine with power management services, wireless connectivity and high speed I/O to accelerate your time to market.

The Module integrates compatible and complementary technologies while eliminating the need to select, procure and place discrete devices.

Module Features:

- Quad-Core processing unit
- UEFI compliant BIOS
- Multiple SKUs (1.5GHz and 1.7GHz)
- Built-In 3 or 4GB RAM and 8 or 16GB eMMC
- Intel® HD Graphics
- On-Chip Image Signal Processor (ISP)
- Bluetooth* 4.2 compliant
- Wi-Fi* (802.11ac) Dual Band MIMO

Software & Firmware:

- Linux* 4.4 Kernel
- A Linux*-based OS

Physical Interfaces

- HDMI* 1.4b output at 1080p
- MIPI* CSI and DSI interface
- Up to 48 GPIO (including 4 PWMs)
- Up to 2 USB 3.0 interfaces plus 1 USB 2.0 with OTG support
- Up to 4 independant UARTs
- I2C, I2S, and SPI interfaces

Intel® RealSense™ compatibility:

- Intel RealSense API enables 3D scanning, object recognition, and person tracking

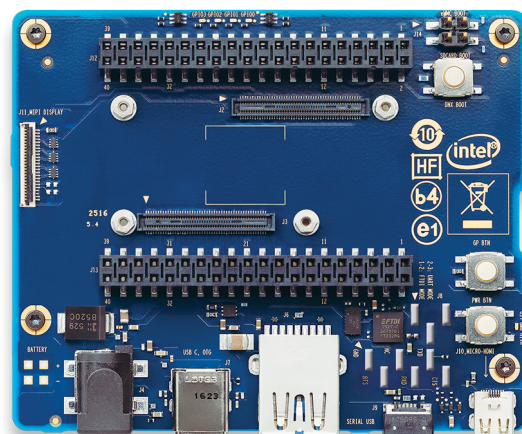
[Support for Intel® RealSense™ cameras and libraries >](#)

Expansion Board for the Intel® Joule™ Module

The expansion board is intended to breakout all I/O interfaces from the Intel® Joule™ module into easily accessible connectors.

The expansion board design files are provided under a Creative Commons license to enable end-users and hardware ecosystem partners to design custom expansion boards for the Intel Joule module.

Proven schematics and layout recommendations can reduce custom expansion board fabrication risks and costs.



Technical Specifications

PHYSICAL

| | |
|-----------------------|-------------------------|
| Dimensions | 70 x 85 mm |
| Operating temperature | 32 to 158°F (0 to 70°C) |

INTERFACES

| | |
|---|-----------------------------------|
| Micro HDMI connector | Micro-SD* card slot |
| USB 3.0 Type A connector | MIPI* display connector |
| USB 3.0 Type C connector | RTC battery holder |
| 3 Buttons: DnX boot, general purpose, and power | LEDs (1 power, 4 general purpose) |

Two 2x20 pin breakout connectors:

- 19.2 MHz and 32.768 kHz clocks
- 2 SPI interface
- 4 UARTs, 3 full and 1 half
- I2S interface
- 5 I2C interfaces
- 2 digital microphone interfaces
- 8 dedicated GPIOs with reference BIOS/IFWI
- 4 PWM ports

POWER DELIVERY

| |
|------------|
| DC Jack |
| USB Type C |



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