Intel® Joule™ 570x Developer Kit

Intel® Joule™ Platform

Big Compute in a Small Package to Drive IoT Innovation

Intel® Joule™ platform, a high-end computer platform capable of delivering human-like senses to a new generation of smart devices Created for the Internet of Things (IoT), the Intel Joule platform enables developers and entrepreneurs to build out an embedded system or take a prototype to commercial product faster, while also minimizing development costs.
The Intel Joule platform starts with a compute module featuring high-end compute, 4K video and large memory in a tiny, low-power package. The platform incorporates a vast software and hardware ecosystem, enabling developers to choose from multiple operating systems and take advantage of off-the-shelf libraries and sensors. The platform also includes support for Intel® Real Sense™ technology, making it particularly well suited for products and industrial systems requiring advanced computer vision or high-end edge computing.

The Intel Joule Advantage

• **Big compute in a small package:** High-end computing and large memory in a tiny package and low power footprint, making it ideal for applications requiring abundant compute power but with limited space for compute hardware, like autonomous robots and drones.
• **Human-like senses:** Support for Intel® Real Sense cameras and libraries enables developers to build devices that capture rich depth of field (DOF) information, which can be processed to create a high level of computer intelligence about the environment and objects within it, making a “thing” capable of autonomous behaviour.
• **Communications:** Laptop-class wireless comms, with 802.11ac for extended range and bandwidth.
• **Development ecosystem:** Intel® and its partners have created a robust software development ecosystem, which offers developers their choice of operating systems.
• **Certification:** Intel Joule platform is pre-certified for distribution and sale into more than 80 countries, enabling significant savings in the time and expense of pursuing certification.
• **Scalability:** Because the Intel Joule platform is based on an Intel® Atom™ SoC, transitioning a product design to high-volume production can be done with modest engineering expense, providing a mature platform for companies who require the option to scale down the road.

About the Intel Joule Platform

The Intel Joule compute module is available in two high-performance configurations: the Intel® Joule™ 550x and the higher-performance Intel® Joule™ 570x. The complete, low-power solution comes with high-performance compute and graphics, large memory and storage, power management, Bluetooth*, Wi-Fi and an IoT tailored Linux*-based OS

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The Intel Joule 570x module features:

• High-performance, 64-bit, 1.7 GHz quad-core Intel® Atom™ T5700 processor with burst up to 2.4 GHz
• 4GB LPDDR4 RAM and 16GB eMMC memory

- Intel® HD Graphics with 4K video capture and display
- 802.11ac Wi-Fi with MIMO and Bluetooth 4.1
- USB 3.0, MPI* CSI and DSI interfaces, and multiple GPIO, I2C, UART interfaces
- Linux-based OS tailored for IoT and smart devices
- Enhanced support for the Intel® RealSense cameras and libraries

Specifications

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Essentials	
Status	Launched
Launch Date	Q3'16
Board Form Factor	24mm x 48mm
Socket	2 - 100 pin Hirose
Embedded Storage	16 GB
Embedded Options Available	No
Lithography	14 nm
DC Input Voltage Supported	3.15-4.5V
Recommended Customer Price	$369.00
Pre-Installed Operating System	Linux Kernel 4.4 optimized for IOT
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Memory Specifications	
Pre-Installed Memory	Yes
Max Memory Size (dependent on memory type)	4 GB
Memory Types	LPDDR4
Max # of Memory Channels	4
Max Memory Bandwidth	25.6 GB/s
ECC Memory Supported ‡	No
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Graphics Specifications	
Integrated Graphics ‡	Yes
Graphics Output	Intel® HD Graphics: HDMI 1.4B, MIPI DSI 1.1
Intel® Clear Video Technology	No
# of Displays Supported ‡	2
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Expansion Options	
PCI Support	Yes
PCI Express Revision	PCIe Gen2.0
PCI Express Configurations ‡	PCIe - 1 x1* mux'ed with USB3
Max # of PCI Express Lanes	1
PCIe x4 Gen 3	0

PCIe x8 Gen 3	0
PCIe x16 Gen 3	0
PCIe x1 Gen 2.x	1
PCIe x4 Gen 2.x	0
PCIe x8 Gen 2.x	0
PCIe x16 Gen 2.x	0
PCIe x1 Gen 1.x	0
PCIe x4 Gen 1.x	0
PCIe x8 Gen 1.x	0
PCIe x16 Gen 1.x	0
Removable Memory Card Slot	uSD

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I/O Specifications	
# of USB Ports	2
USB 2.0 Configuration (External + Internal)	2
USB 3.0 Configuration (External + Internal)	1 + 1
Total # of SATA Ports	0
Max # of SATA 6.0 Gb/s Ports	0
# of eSATA Ports	0
RAID Configuration	0
# of PATA Ports	0
# of Parallel Ports	0
Integrated LAN	No
Integrated Wifi	802.11ac 2x MIMO
Integrated Bluetooth	Yes

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Package Specifications	
Low Halogen Options Available	See MDDS

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Advanced Technologies	
Intel® Virtualization Technology for Directed I/O (VT-d) ‡	No
Intel® vPro Technology ‡	No
Intel® Remote Wake Technology	No
Intel® Remote PC Assist Technology	No
Intel® CIRA Technology	No
TPM	Yes
TPM Version	fTMP2.0
Intel® Quick Resume Technology	No
Intel® Quiet System Technology	No
Intel® HD Audio Technology	No
Intel® AC97 Technology	No

Intel® Matrix Storage Technology	No
Intel® Rapid Storage Technology	No
Intel® Rapid Storage Technology enterprise	No
Intel® Fast Memory Access	No
Intel® Flex Memory Access	No
Intel® I/O Acceleration Technology	No
Intel® Small Business Advantage	No
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Intel® Data Protection Technology	
Intel® AES New Instructions	Yes
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Intel® Platform Protection Technology	
Anti-Theft Technology	No