

# Intel® Galileo Gen 2 Development Board



The 2nd generation Intel® Galileo board provides a single board controller for the maker community, students, and professional developers. Based on the Intel® Quark™ SoC X1000, a 32-bit Intel® Pentium® processor-class system on a chip (SoC), the genuine Intel® processor and native I/O capabilities of the Intel Galileo board (Gen 2) provide a full-featured offering for a wide range of applications. Arduino-Certified and designed to be hardware-, software-, and pin-compatible with a wide range of Arduino Uno R3 shields, the Intel Galileo Gen 2 board also provides a simpler and more cost-effective development environment compared to the Intel® Atom™ processor- and Intel® Core™ processor-based designs.

## 2nd Generation Product Enhancements

The Intel Galileo board (Gen 2) delivers improved features and functionality in the following areas:

- 12 GPIOs fully native for greater speed and improved drive strength.
- 12-bit PWM for more precise control of servos and smoother response.
- 12 V Power-over-Ethernet capable.
- Power supplies from 7 V to 15 V are supported.
- Serial console UART header is compatible with FTDI USB converters.
- Console UART1 can be redirected to Arduino\* headers in sketches, which can eliminate the need for soft-serial.

## Arduino Uno R3\*-compatible

Getting familiar with the board and developing applications is a snap because the Intel Galileo board (Gen 2) matches the Arduino 1.0 pinout and is also software-compatible with the Arduino Software Development Environment.

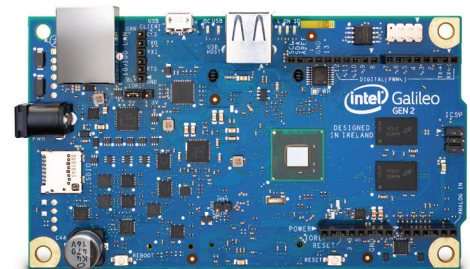
## Open Source Hardware

The Intel Galileo board (Gen 2) is an open source hardware design. Schematics, Cadence Allegro board files, and bill of materials (BOM) are freely available for download.

## Extensive Expandability

In addition to Arduino hardware and software compatibility, the Intel Galileo board (Gen 2) includes the following industry-standard I/O ports and features:

- Full-sized mini-PCI Express\* slot
- 10/100 Mbps Ethernet\* RJ45 port with PoE support
- Micro-SD slot
- TTL UART 6-pin header
- USB 2.0 Host port
- USB 2.0 Client port



## Target Software

Use the Arduino Software Development Environment to create programs for Galileo called “sketches.” To run a sketch on the board:

1. Connect power.
2. Connect the board’s USB Client port to a computer.
3. Upload the sketch using the IDE interface.

The sketch runs on the Galileo board and communicates with the Linux\* kernel in the board firmware using the Arduino I/O adapter. For complete details on programming your board, see the [Intel® Galileo Getting Started Guide](#).

## Intel® Galileo Gen 2 Development Board

SPECIFICATIONS	
<b>DIMENSIONS</b>	123.8 mm (L) × 72.0 mm (W) USB connectors, RJ45 (Ethernet) jack, and power jack slightly extend beyond these dimensions
<b>ATTACHMENT</b>	Four screw holes 4 mm (diameter) Arduino-compatible headers containing: <ul style="list-style-type: none"><li>• 20 digital I/O (12 fully native speed)</li><li>• 6 analog inputs</li><li>• 6 PWMs with 12-bit resolution</li><li>• 1 SPI master</li><li>• 2 UARTs (1 shared with console UART)</li><li>• 1 I<sup>2</sup>C master</li></ul>
<b>CONNECTORS</b>	6-pin console UART (compatible with FTDI USB converters) 6-pin ICSP 10-pin JTAG for debugging RJ45 Ethernet, Power over Ethernet capable USB 2.0 Host (standard Type A) USB 2.0 Client (micro-USB Type B) Mini-PCI Express* 1x slot
<b>POWER</b>	Jack with increased range (7 to 15 V) Supports Power-over-Ethernet (requires PoE module installation) Header for RTC power
<b>BUTTONS</b>	Reset for sketch and attached shield resets 10/100 Mbps Ethernet Reboot to reset the Intel® Quark™ SoC X1000
COMMUNICATIONS	
<b>PORTS</b>	USB 2.0 Host port (standard Type A) USB 2.0 Client port (micro-USB Type B) TTL UART 6-pin header (compatible with FTDI converters) Mini-PCI Express* (mPCIe*) slot with USB 2.0 Host support
PROCESSOR FEATURES	
<b>MODEL</b>	Intel® Quark™ SoC X1000
<b>SPEED</b>	400 MHz
<b>CORES/THREADS</b>	1/1
<b>INSTRUCTION SET ARCHITECTURE (ISA)</b>	32-bit Intel® Pentium® processor-compatible ISA
<b>L1 CACHE</b>	16 KB
<b>SRAM</b>	512 KB on-die, embedded
<b>PACKAGING</b>	15 mm × 15 mm BGA ACPI-compatible with CPU sleep states
<b>TECHNOLOGIES SUPPORTED</b>	Integrated real-time clock (RTC) Optional 3 V coin cell battery for operation between turn-on cycles
STORAGE OPTIONS	
<b>FIRMWARE/BOOTLOADER</b>	8 MB NOR Flash
<b>DRAM</b>	256 MB DDR3; 800 MT/s
<b>SD CARD (OPTIONAL)</b>	Up to 32 GB
<b>USB</b>	Compatible with any USB 2.0 storage device (USB drive/stick)
<b>EEPROM</b>	8 KB (programmed via the EEPROM library)

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