

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.

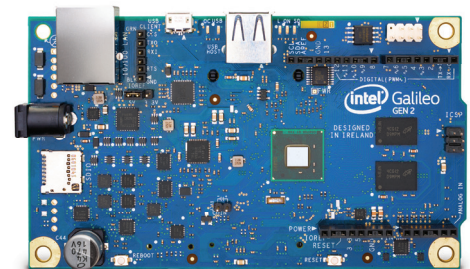
Open Source Hardware

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](#).

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| SPECIFICATIONS | |
|---|---|
| DIMENSIONS | 123.8 mm (L) × 72.0 mm (W) USB connectors, RJ45 (Ethernet) jack, and power jack slightly extend beyond these dimensions |
| ATTACHMENT | Four screw holes 4 mm (diameter) Arduino-compatible headers containing: <ul style="list-style-type: none">• 20 digital I/O (12 fully native speed)• 6 analog inputs• 6 PWMs with 12-bit resolution• 1 SPI master• 2 UARTs (1 shared with console UART)• 1 I²C master |
| CONNECTORS | 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 |
| POWER | Jack with increased range (7 to 15 V) Supports Power-over-Ethernet (requires PoE module installation) Header for RTC power |
| BUTTONS | Reset for sketch and attached shield resets 10/100 Mbps Ethernet Reboot to reset the Intel® Quark™ SoC X1000 |
| COMMUNICATIONS | |
| PORTS | 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 | |
| MODEL | Intel® Quark™ SoC X1000 |
| SPEED | 400 MHz |
| CORES/THREADS | 1/1 |
| INSTRUCTION SET ARCHITECTURE (ISA) | 32-bit Intel® Pentium® processor-compatible ISA |
| L1 CACHE | 16 KB |
| SRAM | 512 KB on-die, embedded |
| PACKAGING | 15 mm × 15 mm BGA ACPI-compatible with CPU sleep states |
| TECHNOLOGIES SUPPORTED | Integrated real-time clock (RTC) Optional 3 V coin cell battery for operation between turn-on cycles |
| STORAGE OPTIONS | |
| FIRMWARE/BOOTLOADER | 8 MB NOR Flash |
| DRAM | 256 MB DDR3; 800 MT/s |
| SD CARD (OPTIONAL) | Up to 32 GB |
| USB | Compatible with any USB 2.0 storage device (USB drive/stick) |
| EEPROM | 8 KB (programmed via the EEPROM library) |

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