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.
## 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:
• 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)