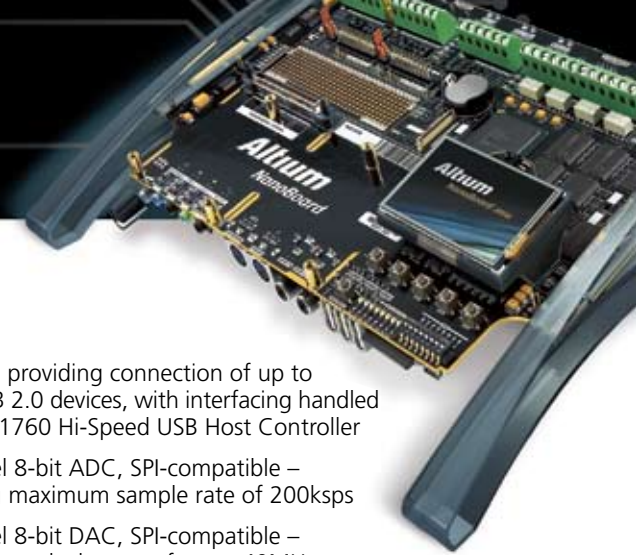


Altium NanoBoard 3000



Architectural highlights

- Reprogrammable hardware development platform that harnesses the power of a dedicated high-capacity, low-cost programmable device to allow rapid and interactive implementation and debugging of your designs
- Perfect entry-point to discover and explore the world of soft design. Programmable hardware realm allows you to update the design quickly and many times over without incurring cost or time penalties
- Works seamlessly and in full synchronization with Altium's next-generation electronic design solution, Altium Designer
- Offers a fixed user FPGA that is located on the motherboard itself and provision for a single application-specific plug-in peripheral board for additional system flexibility
- Automatic peripheral board detection and configuration
- Dual boot system, allowing the board to update its firmware in the field by itself, over a standard USB connection – no parallel port or USB JTAG Adapter required

Main board specifications

- Integrated color TFT LCD panel (240x320) with touch screen that facilitates dynamic application interaction
- High-speed PC interconnection through USB 2.0 allows for fast downloading and debugging
- Fixed user FPGA, choose from the following:
 - NanoBoard 3000XN – Xilinx® Spartan™-3AN device (XC3S1400AN-4FGG676C)
 - NanoBoard 3000AL – Altera® Cyclone™ III device (EP3C40F780C8N)
 - NanoBoard 3000LC – LatticeECP2™ device (LFE2-35SE-5FN672C)
- Accommodates a single application-specific plug-in peripheral board for additional system flexibility
- Programmable clock (6 to 200MHz) and fixed clock (20MHz) – both available to user FPGA
- SPI real-time clock with 3V battery backup
- High-quality stereo audio capabilities including: Line In/Out/Headphones, audio CODEC with I2S-compatible interface, analog mixer, audio power amplifier and high-quality speakers (located on a separate speaker board attachment)
- On-board memories accessible by user FPGA – 256kB x 32-bit common-bus SRAM (1MB), 16MB x 32-bit common-bus SDRAM (64MB), 8MB x 16-bit common-bus 3.0V Page Mode Flash memory (16MB), dual 256kB x 16-bit independent SRAM (512kB each)
- Four 8Mbit SPI flash memory devices – one containing Primary boot image for Host Controller, one containing golden boot image for Host Controller, two for use by user FPGA (for boot/embedded purposes)
- Variety of standard communications interfaces: RS-232, RS-485, PS/2, 10/100 Fast Ethernet, USB 2.0, S/PDIF, MIDI

- USB hub, providing connection of up to three USB 2.0 devices, with interfacing handled by an ISP1760 Hi-Speed USB Host Controller
- 4-channel 8-bit ADC, SPI-compatible – providing maximum sample rate of 200ksps
- 4-channel 8-bit DAC, SPI-compatible – operating at clock rates of up to 40MHz
- 4x isolated IM Relay channels – each channel providing a 5V non-latching DPDT relay with one coil
- 4x PWM power drivers
- IR receiver – receptive of data transmitted using a 38kHz carrier frequency
- SVGA interface (24-bit, 80MHz)
- Dual SD card readers – for use by user FPGA and Host Controller respectively
- User prototyping area
- 8-way general purpose DIP-Switch, 8 RGB LEDs, 5 PDA-style push button switches and a Test/Reset button – all wired directly to the user FPGA
- Dual 18-way (20 pin) I/O expansion headers, with power supply selection links
- Board ID Memory – 1-Wire® ID system uniquely identifies the motherboard and any attached peripheral board
- Host (NanoTalk) Controller hosts the NanoBoard firmware. Responsibilities include managing JTAG communications (with Altium Designer/User FPGA/connected peripheral board), as well as access to common-bus SPI resources
- 5V DC power connector with power switch, plus testpoints for all major supplies on the board (and GND)

Included in the box

Altium Designer

The NanoBoard 3000 includes a 12-month subscription to an Altium Designer Soft Design (Hardware Linked) license, unique and locked to the NanoBoard in the box. This license gives access to elements of the software that are strongly associated with soft design, including: royalty-free 32-bit soft processors, peripherals, source code libraries, C-compilers, debuggers and embedded instruments.

Additional Altium Designer license options are available for custom board design. For information on Altium Designer licensing options, visit www.altium.com/altiumdesigner

Training and resource materials

Altium provides extensive online resources designed to get you up and running as quickly as possible.

- Everything you need to know to get started and build your proficiency with Altium Designer – www.altium.com/gettingstarted
- Full technical information on the NanoBoard 3000 – www.altium.com/wiki/nanoboard3000