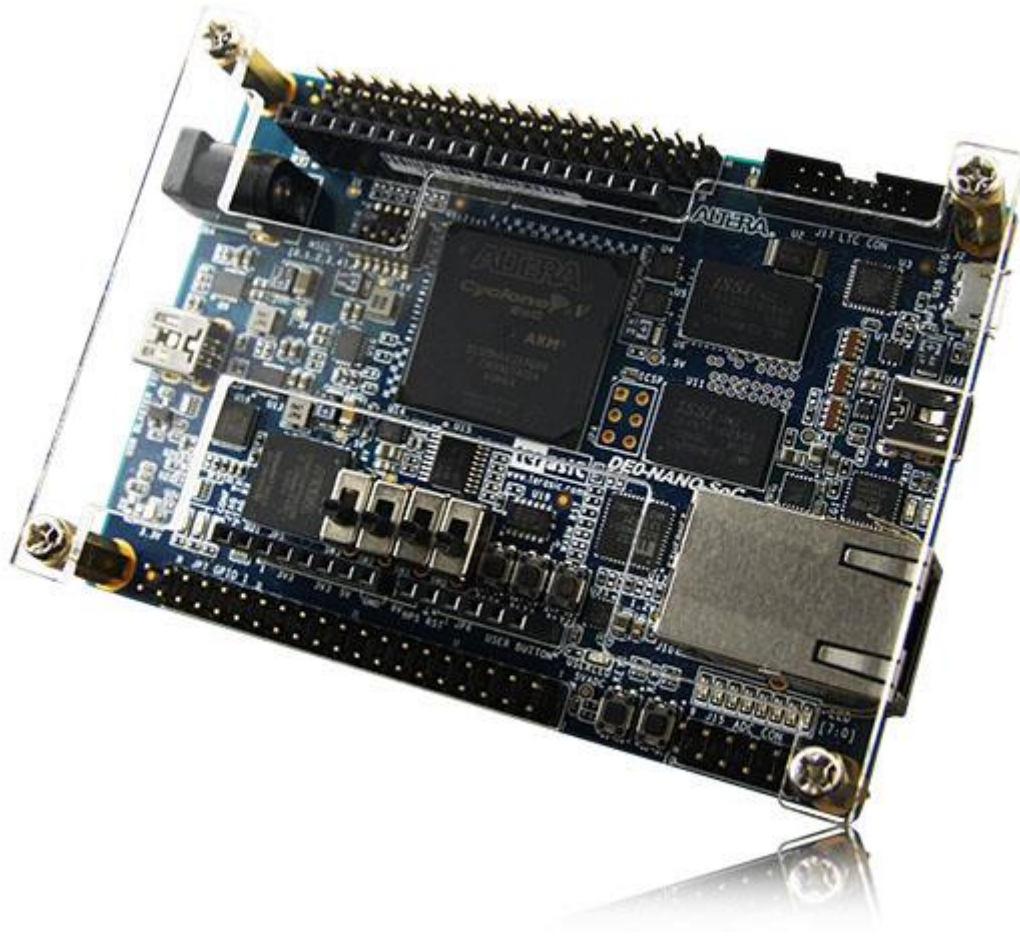


## DE0-Nano-SoC Kit/Atlas-SoC Kit

### 1. Overview



The DE0-Nano-SoC Development Kit presents a robust hardware design platform built around the Altera System-on-Chip (SoC) FPGA, which combines the latest dual-core Cortex-A9 embedded cores with industry-leading programmable logic for ultimate design flexibility. Users can now leverage the power of tremendous re-configurability paired with a high-performance, low-power processor system. Altera's SoC integrates an ARM-based hard processor system (HPS) consisting of processor, peripherals and memory interfaces tied seamlessly with the FPGA fabric using a high-bandwidth interconnect backbone. The DE0-Nano-SoC development board is equipped with high-speed DDR3 memory, analog to digital capabilities, Ethernet networking, and much more that promise many exciting applications.

The DE0-Nano-SoC Development Kit contains all the tools needed to use the board in conjunction with a computer that runs the Microsoft Windows XP or later.

#### What's different between the DE0-Nano-SoC kit and the Atlas-SoC kit?

- **Company:** Terasic
- **Tel:** +886-3-5750880
- **Fax:** +886-3-5726690
- **Add:** 9F., No.176, Sec.2, Gongdao 5th Rd, East Dist, Hsinchu City, 30070. Taiwan

The DE0-Nano-SoC kit uses the same printed circuit board as the Atlas-SoC development platform. The only difference is the getting-started process for the two kits. Both kits come with a unique set of reference designs, tools, and documentation providing very different user experiences. Here's how to decide which is better for you:

DE0-Nano-SoC: Designed for the hardware developer. It provides reference designs and tutorials to guide you through your first FPGA, HPS, and system designs.

Atlas-SoC: Designed for the embedded software developer. It boots Linux, runs web and VNC servers, and provides reference designs, development tools, and tutorials to accelerate the learning curve of developing software for SoCs.

Can't decide which to use? Here's how to get them both.

Regardless of which kit you have, the reference designs, tools, documentation, and SD card images are available for free download. Because the hardware is the same, you can turn a DE0-Nano-SoC kit into an Atlas-SoC kit, or visa-versa, with a simple download and flash card update. Here's where to get the kit"soft" content:

## 2. Specification

### FPGA Device

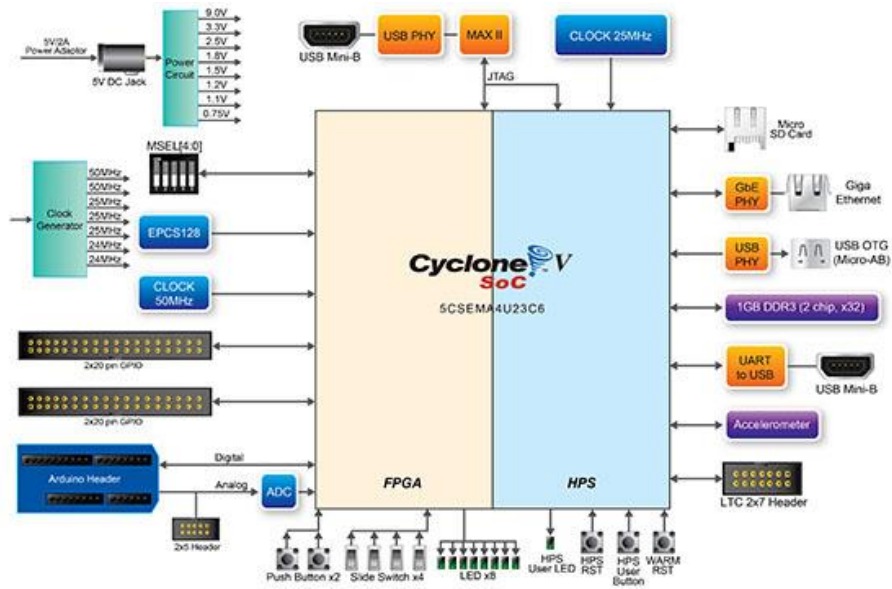
- Altera Cyclone® V SE 5CSEMA4U23C6N device
- Serial configuration device – EPCS128
- USB-Blaster II onboard for programming; JTAG Mode
- 2 push-buttons
- 4 slide switches
- 8 green user LEDs
- Three 50MHz clock sources from the clock generator
- Two 40-pin expansion header
- One Arduino expansion header (Uno R3 compatibility), can connection with Arduino shields.
- One 10-pin Analog input expansion header. (shared with Arduino Analog input)
- A/D converter, 4-pin SPI interface with FPGA

### HPS (Hard Processor System)

- 925MHz Dual-core ARM Cortex-A9 processor
- 1GB DDR3 SDRAM (32-bit data bus)
- 1 Gigabit Ethernet PHY with RJ45 connector
- USB OTG Port, USB Micro-AB connector
- Micro SD card socket
- Accelerometer (I2C interface + interrupt)
- UART to USB, USB Mini-B connector
- Warm reset button and cold reset button
- One user button and one user LED
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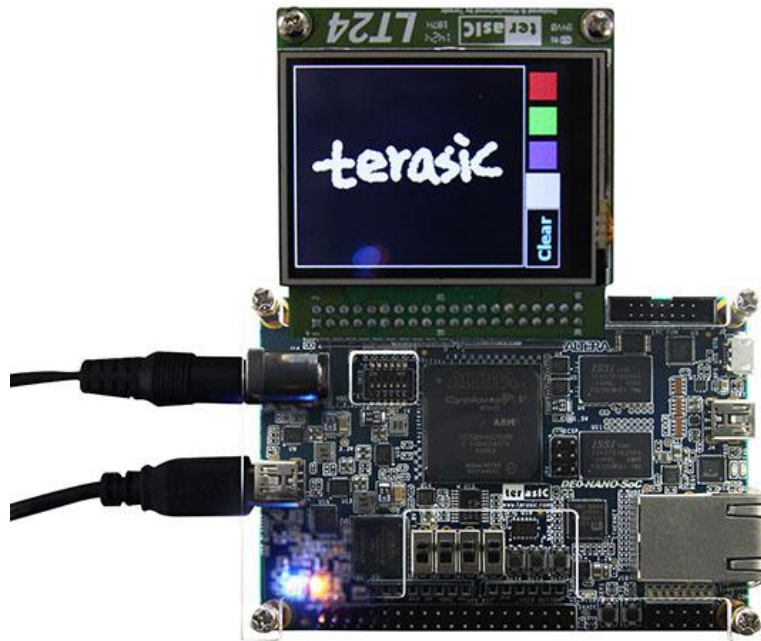
- LTC 2x7 expansion header

### Block Diagram of the DE0-Nano-SOC Board



### Connectivity

- Connect LT24



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- Connect Arduino



### 3. Kit content

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# DE0-Nano-SoC Kit



Same as  
**ATLAS-SoC**

- ① Color Box
- ② DE0-Nano-SoC Board
- ③ Power DC Adapter
- ④ Type A to Mini-B USB Cable x1
- ⑤ Type A to Micro-B USB Cable x1
- ⑥ Sponsor Card
- ⑦ DE0-Nano-SoC Quick Start Guide
- ⑧ MicroSD Card

- **Company: Terasic**
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# ATLAS-SoC Kit



Same as  
DE0-Nano-SoC

- ① Color Box
- ② ATLAS-SoC Board
- ③ Power DC Adapter
- ④ Type A to Mini-B USB Cable x1
- ⑤ Type A to Micro-B USB Cable x1
- ⑥ Sponsor Card
- ⑦ ATLAS-SoC Quick Start Guide
- ⑧ MicroSD Card

- Company: Terasic
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- Add: 9F., No.176, Sec.2, Gongdao 5th Rd, East Dist, Hsinchu City, 30070. Taiwan