



# Nios II Development Kits

*Accelerating Embedded Designs*

"The Nios II integrated development environment (IDE) delivers every element we could hope for and will reduce our software engineering time. By enabling us to add features and support RECAPs with greater efficiency, the Nios II processor provides us with the means to deliver greater value to our customers while keeping our costs to a minimum."

Martin Forsberg Lie  
Software Architect

**Wireless Reading Systems**

"The implementation of Nios processors in Stratix® FPGAs offers a powerful processor and additional interface IP modules. This significantly increases the time available to develop new features in our products. The Stratix edition of the Nios Development Kit will allow us to accelerate our product development and reap the significant time-to-market benefits of Altera's solutions."

Jayne Hahin  
Sr. Product Development Engineer  
**Finisar Corporation**

Altera's Nios® II development kits provide everything you need to take your next embedded design from concept to system in minutes—just add electricity.

Nios II development kits include a complete set of development tools, hardware, software, intellectual property (IP) cores, documentation, and reference designs.

## Design Hardware

- Development Board
- LCD Module
- USB-Blaster™ Download Cable
- RS-232 Cable
- Ethernet Cable
- Power Supply

## Development Tools

- Nios II Integrated Development Environment
- SOPC Builder System Design Tool
- Quartus® II Design Software

## IP Cores

- Nios II Family of 32-bit RISC Processors
- Memory Interfaces
- Communications Interfaces
- Direct Memory Access (DMA)
- Interface-to-User Logic

## Embedded Software

- MicroC/OS-II Real-Time Operating System
- Lightweight IP TCP/IP Stack

## Documentation

- Getting Started User Guide
- Tutorials & Application Notes
- Processor Reference Handbook
- Software Developer's Handbook
- Development Board Reference Manual

## Reference Designs

- Web Server
- Performance-Optimized System
- Cost-Optimized System

## Subscription Upgrades

All Nios II development kits include a 12-month subscription upgrade so that you can keep your system up-to-date with the latest enhancements to the Nios II processor, peripherals, and software design tools. A coupon included with each development kit provides a low-cost upgrade path to a perpetual license for the Quartus II design software, 12 months of updates, and the Model Technology™ ModelSim®-Altera® software.



## Nios II Development Kit Features

Features	Cyclone™ II Edition	Cyclone Edition	Stratix II Edition	Stratix Edition	Stratix Professional Edition
<b>Device</b>	<b>EP2C35F672</b>	<b>EP1C20FC400</b>	<b>EP2S30F672</b>	<b>EP1S10F780</b>	<b>EP1S40F780</b>
Logic Elements (LEs)	33,216	20,060	33,880	10,570	41,250
On-Chip Memory (Kbits)	483	294	1,370	920	3,423
DSP Blocks	–	–	16	6	14
Embedded 18x18 Multipliers	35	–	–	–	–
Phase-Locked Loops (PLLs)	4	2	6	6	12
I/O Pins	471	301	500	426	615
<b>Memory</b>					
SRAM (Mbytes)	1	1	1	1	1
SDR SDRAM (Mbytes)		16	16	16	16
DDR SDRAM (Mbytes)	16	–	–	–	–
Flash (Mbytes)	16	8	16	8	8
Serial Configuration Flash	EPCS4	EPCS4	–	–	–
<b>Serial I/O</b>					
Ethernet 10/100	External MAC/PHY Device				
RS-232	1	2	2	2	2
<b>Connectors</b>					
Joint Test Action Group (JTAG)	FPGA, CPLD, Mictor				
Expansion Header	2: 5-Volt Tolerant, 41 I/O (82 I/O Total)				
Mictor	1: 27 I/O (JTAG Debug & Processor Trace)				
PCI Mezzanine (PMC)	32-Bit	–	–	–	–
<b>User I/O</b>					
Prototype Expansion	82 I/O, 5-Volt Tolerant				
LCD	2 Line, 16 Character				
LED	Dual 7-Segment, 8 Single Element LEDs				
Push Buttons	4 User-Defined, 1 Configuration, 1 Processor Reset, 1 Power-On Reset				
<b>Cables</b>					
Download Cable	USB-Blaster (Rev B)				
RS-232	1				
Ethernet	1 Patch, 1 Cross-Over Adapter				
Power Supply	International Cable Adapters				
<b>Development Software</b>					
Intellectual Property	Nios II Family of 32-Bit RISC Processors, Timer, Universal Asynchronous Receiver/Transmitter (UART), Serial Peripheral Interface (SPI), JTAG UART, General Purpose I/O (GPIO), DMA, Ethernet Interface (MAC/PHY), On-Chip RAM/ROM, SRAM, SDRAM, Flash, Compact Flash Interface, Serial Flash Interface, Tri-State Bridge, LCD Interface, Interface to User Logic, Custom Instruction				
Nios II IDE	Compiler, Assembler, Linker, Debugger, Instruction Set Simulator				
MicroC/OS-II	Real Time Operating System				
Lightweight IP	Open Source TCP/IP Stack				
SOPC Builder	System Design Tools				
Quartus II Design Software <sup>1</sup>	Hardware Design Tools				
<b>Ordering</b>					
Part Number	NIOS-DEVKIT-2C35	NIOS-DEVKIT-1C20	NIOS-DEVKIT-2S30	NIOS-DEVKIT-1S10	NIOS-PROKIT-1S40
List Cost	\$995	\$995	\$995	\$995	\$2,495
Availability	Q2 2005	Now	Q4 2004	Now	Now

Note: <sup>1</sup> One year license. Included in kit is a \$995 upgrade coupon for Quartus II perpetual license, 12 months of updates, and Model Technology ModelSim-Altera software.

For more information on Altera and partner development kits, visit [www.altera.com/devkits](http://www.altera.com/devkits).

## Nios II Online Demos

A new series of Nios II online demos take you through all of the major features of creating an embedded system: adding peripherals, DMA channels, and custom instructions, as well as editing, compiling, downloading, and debugging applications software.

[www.altera.com/niosdemos](http://www.altera.com/niosdemos)

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