# COMPAQ

## Alpha Motherboards Software Developer's Kit Version 4.0

# Alpha Motherboards Software Developer's Kit Version 4.0 Product Brief

**The Alpha Motherboards Software Developer's Kit (SDK) enables system designers and developers to create and customize software and firmware for Alpha motherboards. The SDK contains source code, examples, and tools that support the development of new firmware for original designs based on Alpha microprocessors.**

**The development tools include an SROM Mini-Debugger and a set of Software Design Tools that verify PALcode and produce data to program SROMs. Also included in the SDK is the Debug Monitor firmware, which you can use to load code into the system and perform software and hardware debug functions. These tools, source code, and examples support Windows NT systems and Tru64 UNIX systems as host development environments.**

## Alpha SDK

The Alpha Motherboards SDK provides source code and tools that allow customizing of the Debug Monitor, SROM, and PALcode to meet your requirements on Alpha Windows NT or Tru64 UNIX host systems.

### Debug Monitor
The Debug Monitor command-line interface:

- Downloads and executes programs

- Examines and deposits locations in I/O and memory subsystems

- Performs instruction-level debugging

- Performs remote source-level debugging using the DIGITAL Ladebug Debugger

## SROM

The SROM provides hardware initialization. The SROM power-up code:

- Provides initial bootstrap code

- Initializes memory subsystem

- Runs from Icache of CPU

- Runs in PALmode

- Loads and executes higher-level firmware

### SROM Mini-Debugger

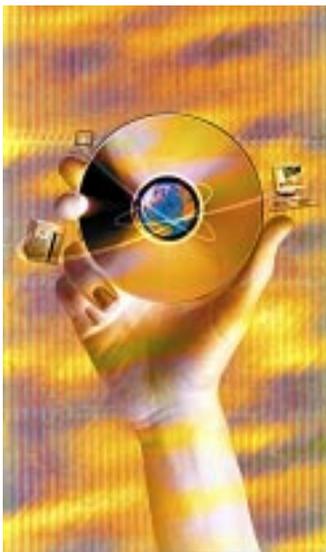The SROM Mini-Debugger provides basic hardware debugging of an Alpha microprocessor. The SROM Mini-Debugger:

- Communicates through a special SROM RS-232 interface with autobaud detection

- Operates independently of the memory or I/O subsystems

## Sample PALcode

PALcode is the privileged architecture library code for the Alpha architecture. The sample PALcode provides a standard programming interface to the Alpha microprocessor and is modeled after the Tru64 UNIX PALcode. It is adaptable for embedded system designs and other UNIX-type operating systems.

## Tools

The Alpha Motherboards SDK tools complement the compilers and debuggers shipped with the Windows NT and Tru64 UNIX operating systems. For example, included in the Alpha Motherboards SDK are a GNU-based assembler and associated utilities, a compression utility, a formatting utility, and a tool that validates PALcode.

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## Source Code

The Alpha Motherboards SDK source code is provided for the following Alpha motherboards:

• AlphaPC 264DP

• AlphaPC 164SX

• AlphaPC 164LX

You can develop your code on a host system and load the software into the motherboard through a serial port, Ethernet port, or floppy drive. The full source code is provided with a free license, enabling you to modify this code as you wish.

## Ordering the Alpha Motherboards Version 4.0 SDK

You can order the Alpha Motherboards SDK from COMPAQ. To order this CD-ROM, please contact your local Compaq OEM sales office. You can find a list of Compaq OEM sales offices on the Compaq Alpha OEM website at:
**http://www.digital.com/alphaoem**

## Ordering SRM Console Firmware Updates

Alpha SRM Console firmware images that were formerly supplied in the Alpha Motherboards SDK are now available on a separate CD-ROM from COMPAQ:

**Alpha Systems Firmware Update CD-ROM:    QY–003AA–A8**

The SRM Console firmware is also included in the Tru64 UNIX kit.

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| | • Software Design Tools |
| | • Sample PALcode |
| Online Documentation | • *Alpha Motherboards SDK Read Me First* |
| | • *Alpha Motherboards Debug Monitor User's Guide* |
| | • *Alpha Motherboards Software Design Tools User's Guide* |
| | • *Alpha Motherboards SROM Mini-Debugger User's Guide* |
| | • *Alpha Motherboards SDK Software License* |
| | • *Alpha Architecture Handbook* |
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| Hardcopy Documentation | • *Alpha Motherboards SDK Read Me First* |
| | • *Alpha Motherboards SDK Software License* |

| Alpha Motherboards | Order Number* |
|---|---|
| AlphaPC 264DP Windows NT: | |
| • Mainboard | 21A06–B0 |
| • Daughtercard | 21A06–M0 |
| AlphaPC 164SX Windows NT | 21A05–A0 |
| AlphaPC 164LX Windows NT | 21A04–C0 |

*Contact your local sales office for the most recent order numbers.

## Obtaining Windows NT Firmware Updates

Windows NT firmware images and Windows NT HAL images are available on the Alpha Motherboards Firmware and Drivers web page. At the following URL you can find AlphaBIOS and ARC firmware, HAL and installation floppies for Windows NT, and design files for fabricating your own Alpha motherboards:

**http://ftp.digital.com/pub/Digital/info/ semiconductor/alpha/dsc–software– alpha.html**

## For More Information

Access the Alpha OEM website at the following URL to obtain additional information:

**http://www.digital.com/alphaoem**

This website contains the following resources:

• Development tools

• Motherboard information

• Microprocessor component information

• Product documentation

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