PRELIMINARY

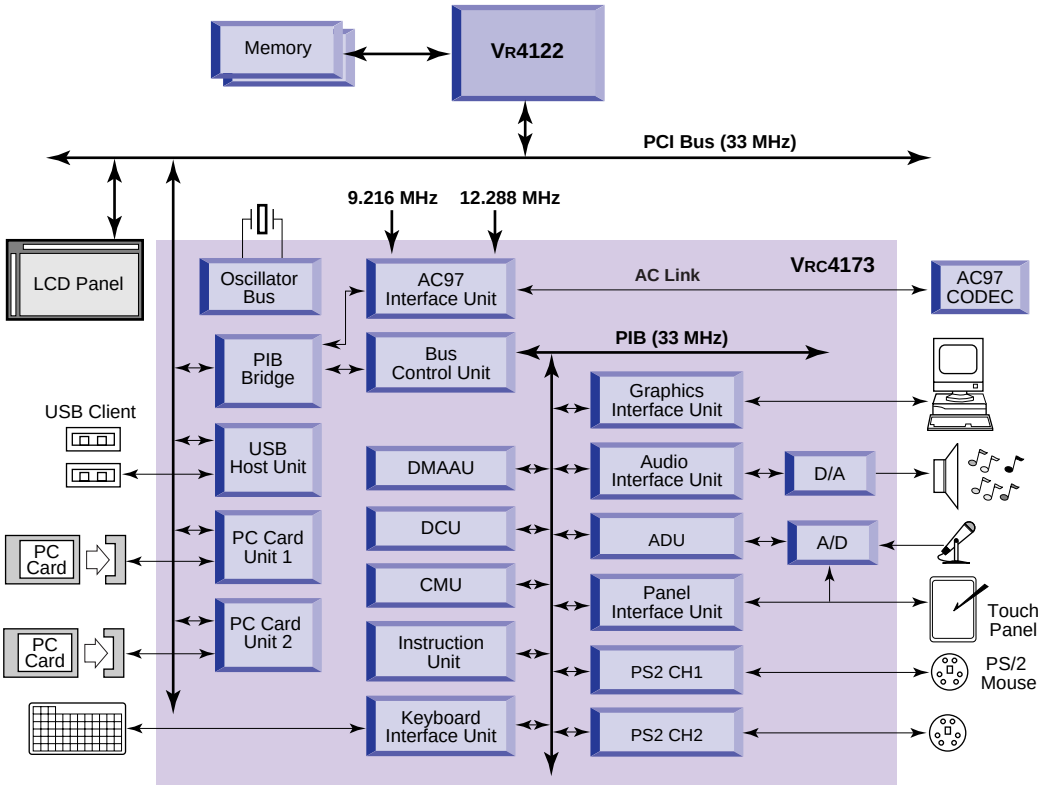
VRC4173 COMPANION CHIP

FOR WINDOWS CE

The VRC4173™ is a companion chip designed to be used with NEC's VR4122™ 64-bit MIPS® RISC microprocessor. The VRC4173 incorporates the I/O macros necessary for a handheld PC running Microsoft® Windows® CE, and can also access design resources on a personal computer by means of the PCI bus interface. With the VR4122 acting as the host CPU, the VRC4173 functions include PCI bus interface, USB host controller, two-slot PC Card™ controller, AC97 interface, keyboard controller, 10-bit D/A converter, 12-bit A/D audio controller, touch panel controller, general-purpose I/O pins, and built-in 48-MHz oscillator.

The VR4122 and VRC4173 provide an excellent performance/cost solution for Windows CE H/PC Pro applications. They also form an ideal engine for most high-performance Windows CE-based handheld products.

BLOCK DIAGRAM



NEC's VRC chipsets are designed for use with NEC VR Series microprocessors. NEC makes no claim as to the suitability of VRC chipsets for use with non-NEC microprocessors and does not warrant their performance, suitability or use in such applications.

FEATURES

PCI BUS PROCESSOR INTERFACE
— 32-bit PCI Bus operating at 33 MHz
— CLKRUN signal support

USB HOST CONTROLLER
— Compliant with OpenHCI release 1.0 specification
— Two-port, two-speed (12 Mbps, 1.5 Mbps)
— Built-in FIFO
  • PCI read cycle = 4 x 4 Dwords
  • PCI write cycle = 4 x 4 Dwords
  • USB side = 64 x 1 byte

PC CARD CONTROLLER
— Compliant with the 1997 PC Card standard
— Two PC Card slots
— Buffer with a 5-volt withstand voltage
— Interface for an external power supply control IC

AC LINK INTERFACE
— AC link conforming to the audio codec (AC97) standard, rev. 2.1
— DMA support

KEYBOARD CONTROLLER
— 96-key keyboard
— VR4121 keyboard interface unit-compatible

AUDIO CONTROLLER
— Reproduction: 10-bit D/A converter
— Recording: 12-bit A/D converter
— VR4121 audio interface unit-compatible

TOUCH PANEL CONTROLLER
— Touch panel driver, coordinate detection (12-bit A/D converter)
— One general-purpose analog input port
— VR4121 panel interface unit-compatible

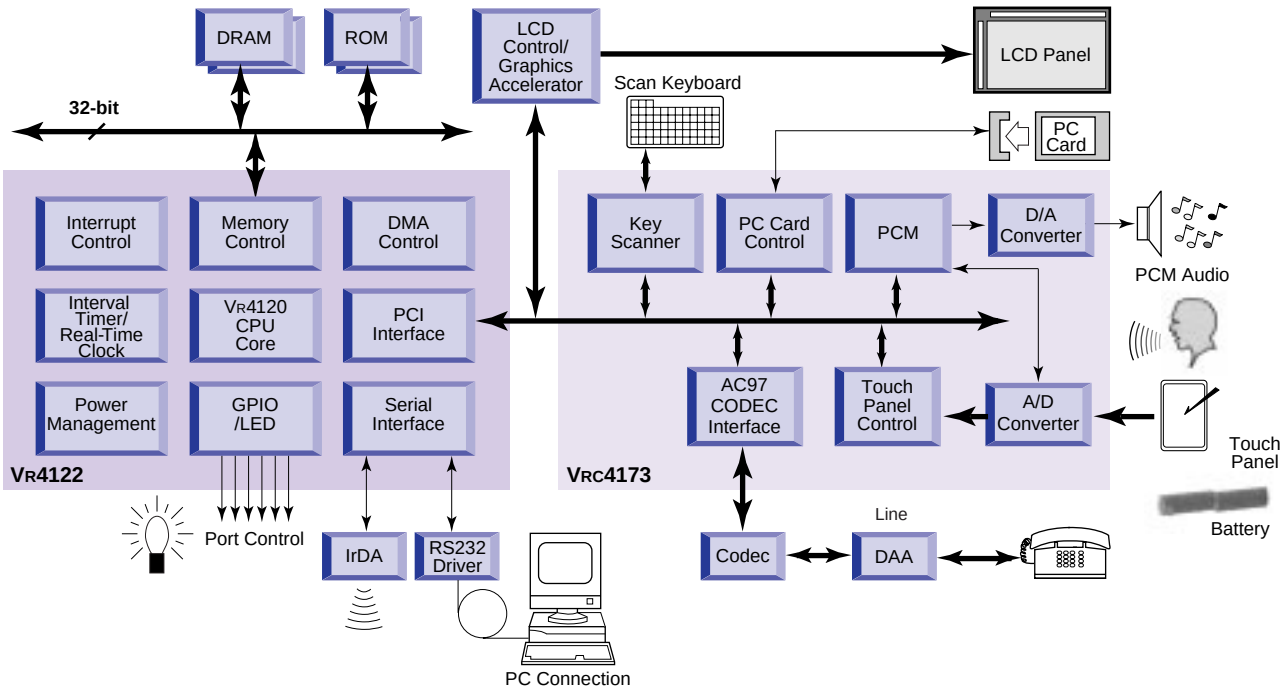
GENERAL-PURPOSE I/O PINS
— Total of 21 pins
— VR4121 general-purpose I/O interface unit-compatible

MISCELLANEOUS
— Built-in 48-MHz oscillator with 48-MHz clock output
— CB-C9VX (UC1H) process
— 3.3-volt, single-voltage power supply (some internals with 5.0-volt withstand voltage)
— 304-pin FPBGA package (19 x 19 mm, 0.8-mm pitch)

ORDERING INFORMATION

PART NUMBER	PACKAGE
μPD31173F1-33-H/N	304-pin FPBGA (19x19mm)

EXAMPLE HANDHELD PC PRO APPLICATION USING VR4122 WITH VRC4173



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or fax your request to **1-800-729-9288**
or visit our Web site at **www.necel.com**

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