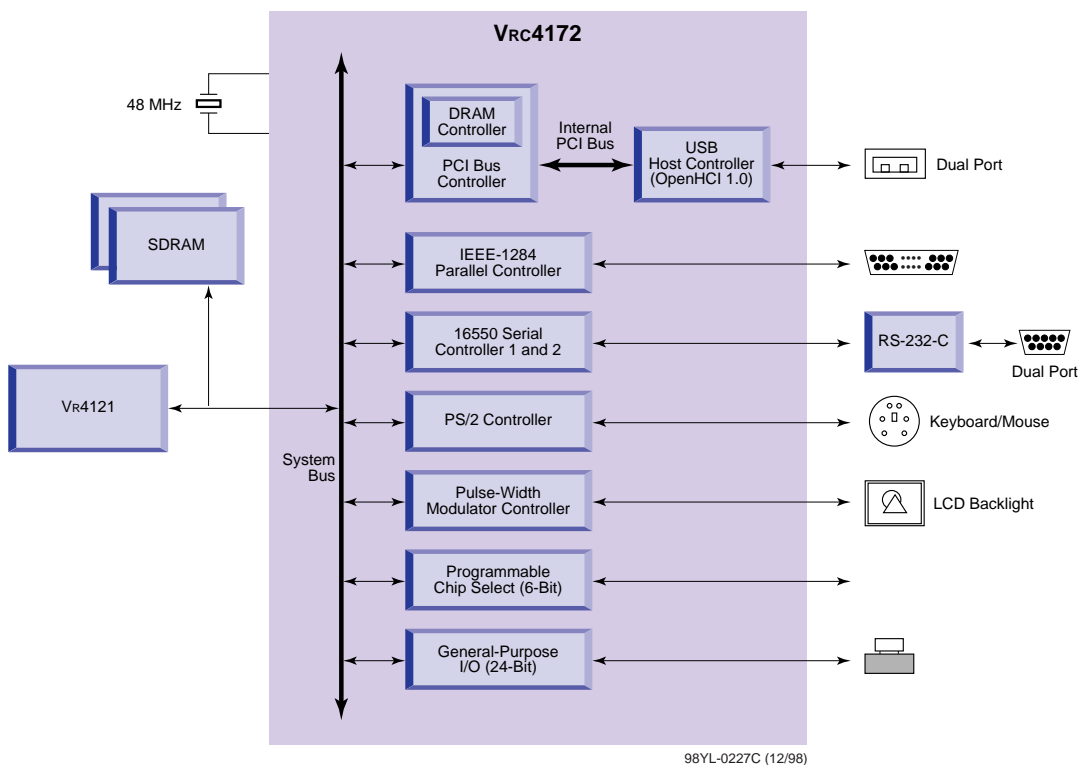


## VRC4172 COMPANION CHIP FOR VR4121 MICROPROCESSOR

The VRC4172™ companion chip to NEC's VR4121™ MIPS® RISC microprocessor is designed for high-end Windows® CE Handheld PC Professional applications. The VR4121 microprocessor functions as the host CPU, while the VRC4172 supplies the SDRAM interface, USB interface, host- and peripheral-selectable IEEE-1284 parallel interface, 16550-compliant serial interface, PS/2 interface, general-purpose I/O ports, general-purpose chip select signal, and pulse-width modulation for the LCD back light.

In combination, the VR4121 and VRC4172 offer an excellent performance/cost solution for next-generation Windows CE applications, forming a superior engine for most, if not all, high-performance Windows CE-based handheld products.

### BLOCK DIAGRAM



### ORDERING INFORMATION

PART NUMBER  
VRC4172

PACKAGE  
256-pin TBGA

## FEATURES

### PROCESSOR INTERFACE

- 32-bit LCD interface
- 16-bit mini-ISA bus interface (as defined by Vr4121)
- DRAM interface and SDRAM controller for DMA/master mode

### USB HOST CONTROLLER

- OpenHCI USB 1.0 compliant
- Standard communication with USB device; asynchronous communication with host CPU
- Full-speed (12 Mbps) and low-speed (1.5 Mbps) operation
- 48-MHz system clock
- On-chip FIFO
  - PCI read: 4 x 4 Dword
  - PCI write: 4 x 4 Dword
  - USB side: 64 x 1byte
- Two downstream ports
- No support for legacy interface

### IEEE1284 PARALLEL PORT INTERFACE

- ECP, EPP, SPP, and P1284 host function with DMA operation
- Device function operation

### SERIAL PORT INTERFACE

- Two 16550-compatible serial interfaces

### PROGRAMMABLE CHIP SELECT AND GENERAL-PURPOSE I/O

- Six chip selects
- 24 general-purpose I/O (GPIO) signals

### PS/2 INTERFACE

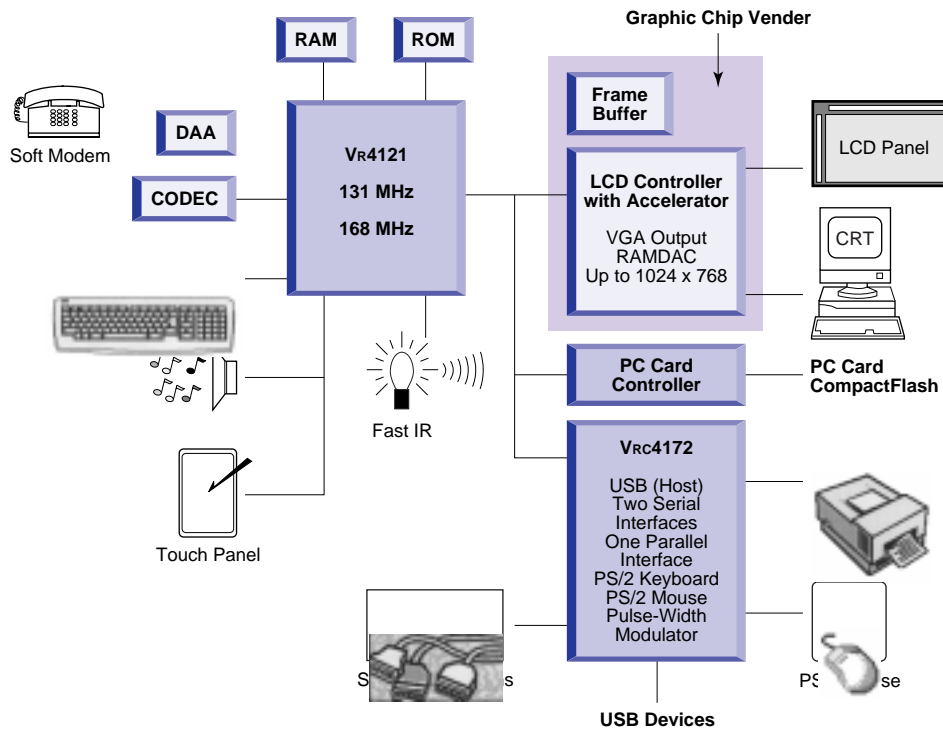
- PS/2 keyboard and mouse support

### PULSE-WIDTH MODULATION (PWM) FOR LCD BACKLIGHT

### PACKAGE

- 256-pin TBGA (27 mm square)

## SAMPLE WINDOWS CE H/PC PROFESSIONAL IMPLEMENTATION



# NEC

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or fax your request to 1-800-729-9288  
or visit our Web site at [www.necel.com](http://www.necel.com)

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