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.

**ORDERING INFORMATION**

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<th>PART NUMBER</th>
<th>PACKAGE</th>
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<tr>
<td>VRC4172</td>
<td>256-pin TBGA</td>
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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

For literature, call 1-800-366-9782 7 a.m. to 6 p.m. Pacific time or fax your request to 1-800-729-9288 or visit our Web site at www.necel.com

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