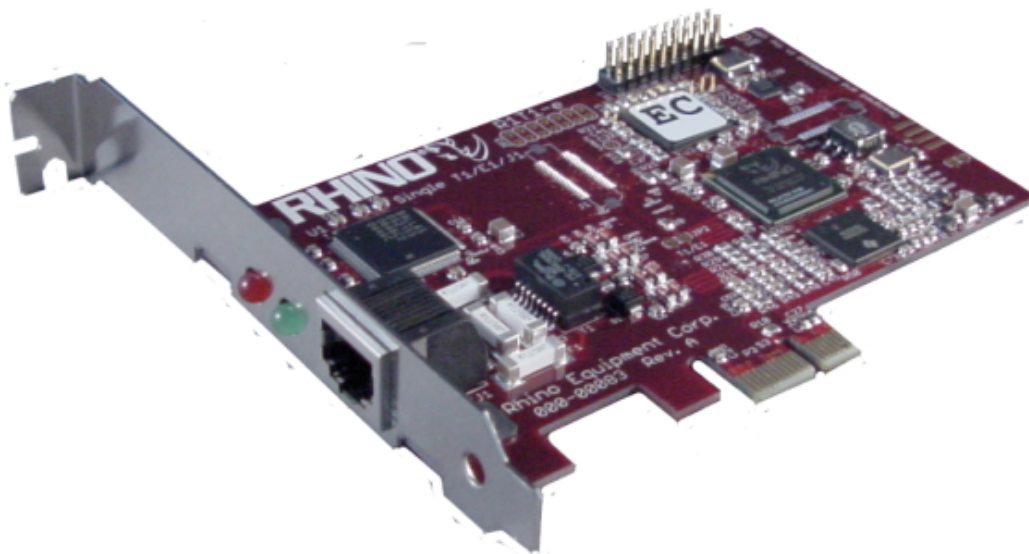


# Single T1-E1-J1 PRI/ISDN with Echo Cancellation PCI Express Plug-In Card

**Providing reliable, flexible, and leading-edge solutions for a demanding telecommunications industry, including the Asterisk\* community.**



Managing your open source telecommunication needs has never been easier than with Rhino products. Rhino PCI plug-in cards satisfy the needs of Open Source Telephony (OST) applications, no matter how stringent the requirement. Rhino Open Source Telephony PCI cards feature Asterisk and Linux tested software. Knowing that Rhino products are ready to perform right out of the box means that you can spend more time developing important customer relationships.

Rhino Equipment Corp. offers you a complete line of low cost PCI plug-in cards including single T1/E1, Quad T1/E1, Quad FXO analog, and Octal FXS/FXO mixed mode analog interfaces. And don't forget the full line of Rhino Channel Bank products, for large scale analog FXS or FXO applications.

Using Asterisk? Rhino Open Source Telephony PCI products allow you to utilize analog phones and wiring in conjunction with leading-edge Asterisk technology -- without having to buy expensive IP telephones. Why go IP when you can save on installations by using your proven existing wiring? With Rhino you can use lower cost analog phones with digital features and get guaranteed T1 voice quality, all while enjoying Asterisk VoIP technology for off-premise connectivity.

Rhino products are tough. In the rare case of trouble, our technical support staff is ready to give you the support you need, when you need it. Our 5-year, limited warranty means that you can be confident that Rhino will always work hard in your Open Source Telephony application.

\* Asterisk is a registered trademark of Digium

# Rhino Equipment Corp.

## T1/E1/J1 PCI Express Card Specifications



### PCI Express Features

- Asterisk soft PBX tested and ready
- Zaptel-compliant open source Linux module source code
- T1/E1 embedded CSU
- Line buildout software selectable
- Custom Rhino PCI interface chip means no excess CPU overhead
- Fractional voice and data capable
- Rhino Echo Clear™ echo cancellation ready
- Field software upgradable
- Alarm and Link status LEDs visible from the rear bracket
- All major signaling modes supported (E&M, PRI, Loop, Ground, Kewl, etc.)
- Loop start signaling for advanced features such as Caller ID and Distinctive Ring
- 5-year limited warranty

### Benefits

Rhino Equipment Corp. provides a flexible and reliable product line to satisfy all T1, E1 and analog needs. Our products will beat your expectations, or your money back - guaranteed.

Our limited 5-year warranty means that you do not have to worry about your investment while it is in use - we do that for you.

### CSU Features

- All Rhino PCI Express T1/E1 cards feature a single chip integrated CSU with both LIU and Framer, that is software controlled and software programmable - no jumpers
- Complete T1/DS1/ISDN-PRI/BRI transceiver functionality
  - Complete E1 (CEPT) PCM-30/ISDN-PRI/BRI transceiver functionality
  - Long-haul and short-haul line interface for clock/data recovery and waveshaping
  - Crystal-less jitter attenuator
  - Fully independent transmit and receive functionality
  - Single chip line interface unit (LIU) and Framer

### Zaptel Selections

- T1 or J1
- T1: D4 or ESF, AMI or B8ZS
- E1: CAS or CCS, AMI or HDB3
- Line buildouts selections: 0-133 feet or 0db, 133-266 feet, 266-399 feet, 399-533 feet, 533-655 feet, -7.5db, -15db, -22.5db
- Loopback configurable using Zaptel tools (i.e. zttool)

### Mechanical Data

- Size:** 3.2" tall, 4.73" wide  
**Form Factor:** Single x1 PCI Express slot  
**Shipping Weight:** 1 pound with all included components maximum

### Echo Cancellation Specs

- Texas Instruments DSP, tried and proven technology
- Adaptive Digital Technologies G.168 Echo Canceller is a carrier-class, ITU G.168 compliant line echo canceller, which meets and exceeds G.168-2002
- Cancels up to 128msec tail
- Non-linear processor
- Comfort Noise Generator
- Automatic tail search
- Excellent voice quality
- Cancels multiple independent tails
- Fast Convergence
- No divergence due to doubletalk
- Tone Disabler disables echo canceller during voiceband modem and FAX connections

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