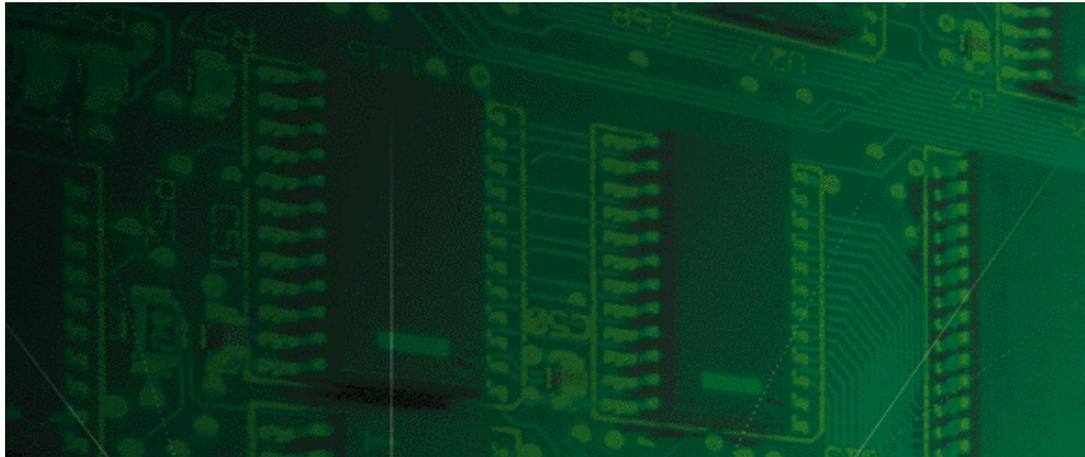


# HiPer DSP T1/E1



## Network Interface Card Getting Started Guide



Part No. 1.024.1310-02



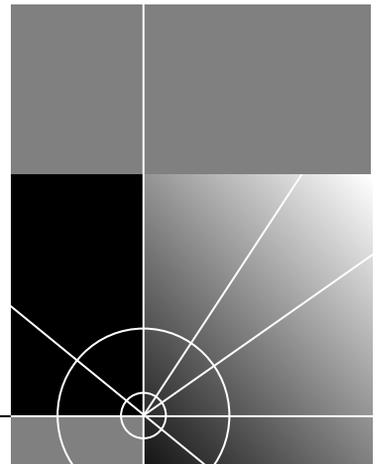
# HiPer DSP T1/E1

## Network Interface Card Getting Started Guide

<http://www.3com.com/>

Part No. 1.024.1310-02

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**5400 Bayfront Plaza**  
**Santa Clara, California**  
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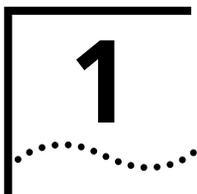
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# OVERVIEW

This chapter provides an overview of:

- Contacting 3Com
- Document conventions
- Product description
- Product compatibility

---

## Contacting 3Com

Call the appropriate toll free number listed below for technical support.



*For European countries that do not have a toll free number listed, call +31 30 602 9900.*

Country	Toll Free Number	Country	Toll Free Number
<b>Austria</b>	06 607468	<b>Netherlands</b>	0800 0227788
<b>Belgium</b>	0800 71429	<b>Norway</b>	800 11376
<b>Canada</b>	1800 2318770	<b>Poland</b>	00800 3111206
<b>Denmark</b>	800 17309	<b>Portugal</b>	0800 831416
<b>Finland</b>	0800 113153	<b>South Africa</b>	0800 995014
<b>France</b>	0800 917959	<b>Spain</b>	900 983125
<b>Germany</b>	0800 1821502	<b>Sweden</b>	020 795482
<b>Hungary</b>	00800 12813	<b>Switzerland</b>	0800 553072
<b>Ireland</b>	1800 553117	<b>UK</b>	0800 966197
<b>Israel</b>	0800 9453794	<b>United States</b>	1800 2318770
<b>Italy</b>	1678 79489	<b>All Other Locations (Outside Europe)</b>	1847 7976600

Refer to the Total Control Hub Documentation CD-ROM for more information regarding product warranty.



For information about Customer Service, including support, training, contracts, and documentation, visit our website at <http://totalservice.3com.com>

## Document Conventions

These tables list conventions used throughout this guide.

Icon	Notice Type	Description
	Information note	Information that contains important features or instructions.
	Caution	Information to alert you to potential damage to a program, system, or device.
	Warning	Information to alert you to potential personal injury or fatality. May also alert you to potential electrical hazard.
	ESD	Information to alert you to take proper grounding precautions before handling a product.

Convention	Description
Text represented as a screen display	This <code>typeface</code> represents displays that appear on your terminal screen, for example: <code>Netlogin:</code>
Text represented as <b>commands</b>	<b>This typeface</b> represents commands that you enter for example: <code>setenv TCMHOME directory</code> <i>This guide always gives the full form of a command in uppercase and lowercase letters. However, you can abbreviate commands by entering only the uppercase letters and the appropriate value. Commands are not case-sensitive.</i>
Text represented as <b>menu</b> or <b>sub-menu names</b> .	<b>This typeface</b> represents all menu and sub-menu names within procedures, for example: On the <b>File</b> menu, click <b>New</b> .

---

**Product  
Description**

The HiPer Digital Signal Processor (DSP) T1/E1 Network Interface Card (NIC) provides the physical interface to terminate a single T1 or E1 span for the HiPer DSP Network Application Card (NAC). The NIC is configurable to accommodate long and short cable lengths.

In addition, the HiPer DSP T1/E1 NIC contains two RS-232 serial interfaces. One serial interface allows the user to access the NAC command-line interface (CLI), the other is used to perform a software download.



For more information see the *HiPer DSP Product Reference Guide*.

---

**Product  
Compatibility**

The HiPer DSP T1/E1 NIC is compatible with the HiPer DSP NAC, and will only operate with the software found in the Total Control 3.5 release package.

# 2

## INSTALLATION

This chapter contains HiPer Digital Signal Processor (DSP) T1/E1 Network Interface Card (NIC) installation information.

---

### Installation Tools

To install this NIC in the Total Control chassis, you need a #2 Phillips and flat-head screwdriver.

---

### Installation Procedure

To install this NIC:



**ESD:** To reduce the risk of electrostatic discharge (ESD), take proper grounding precautions before handling the NIC.



Install the NIC with or without power applied to the chassis.

- 1 Configure the NIC via the jumpers.

The HiPer DSP NIC, second revision, includes two new jumpers, which enable users to select the digital rate (T1 or E1) and also to select what is sent to the line when the NAC is unplugged and power is on or the NIC is held in reset.



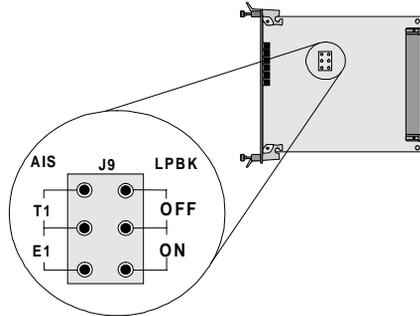
*The original version of the HiPer DSP NIC went into loopback when either the NAC was unplugged or the NIC was otherwise held in reset. The new version of the HiPer DSP NIC contains several configuration jumpers which that allow the flexibility of controlling the NIC default actions under these same conditions.*

The two jumpers are:

- Digital Rate During Reset State
- Power On Loopback State

The jumper settings only apply when NAC is unplugged and power is on or the NIC is held in reset. The jumpers have no effect during normal operation.

Use the following tables and figures to configure the jumpers.



Jumper	Function
AIS T1/E1	Transmitting all Zeros. No jumper present.
AIS T1	Transmitting all Ones (AIS) in T1 Mode. <i>This is the T1 package factory setting</i>
AIS E1	Transmitting all Ones (AIS) in E1 Mode. <i>This is the E1 package factory setting</i>
LPBK OFF	Power ON Loopback Disabled. <i>This is the standard factory setting</i>
LPBK ON	Power ON Loopback Enabled

The following table includes figures of the jumper settings.

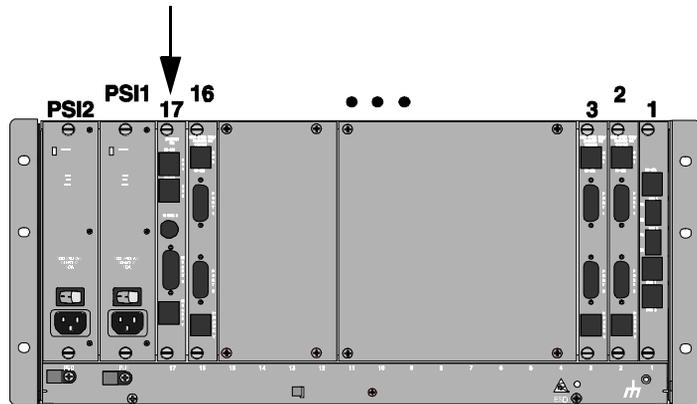
Send all zeros	Send T1-AIS	Send E1-AIS	Send all zeros	Send T1 Loopback	Send E1 Loopback
<b>AIS T1/E1</b>	<b>AIS T1</b>	<b>AIS E1</b>	<b>LPBK OFF</b>	<b>T1 LPBK ON</b>	<b>E1 LPBK ON</b>
T1 <input type="checkbox"/> <input type="checkbox"/> OFF	T1 <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> OFF	T1 <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> OFF	T1 <input type="checkbox"/> <input checked="" type="checkbox"/> OFF	T1 <input checked="" type="checkbox"/> <input type="checkbox"/> OFF	T1 <input type="checkbox"/> <input type="checkbox"/> OFF
E1 <input type="checkbox"/> <input type="checkbox"/> ON	E1 <input type="checkbox"/> <input type="checkbox"/> ON	E1 <input checked="" type="checkbox"/> <input type="checkbox"/> ON	E1 <input type="checkbox"/> <input type="checkbox"/> ON	E1 <input type="checkbox"/> <input checked="" type="checkbox"/> ON	E1 <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> ON



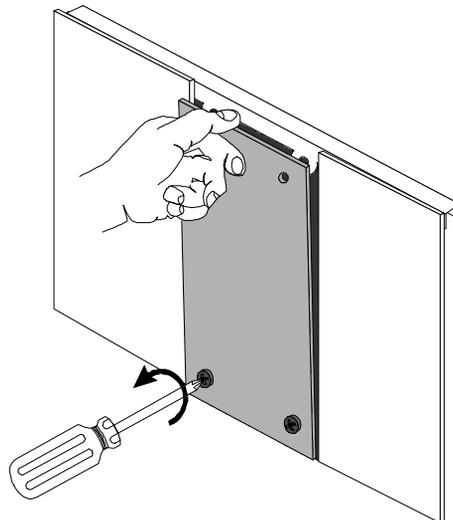
*If the loopback jumper is not in place, loopback is off.*

To use loopback, you must select a span mode: T1 or E1. If you do not select T1 or E1, the NIC will default to the high impedance (all zeroes) state even if the loopback jumper is ON.

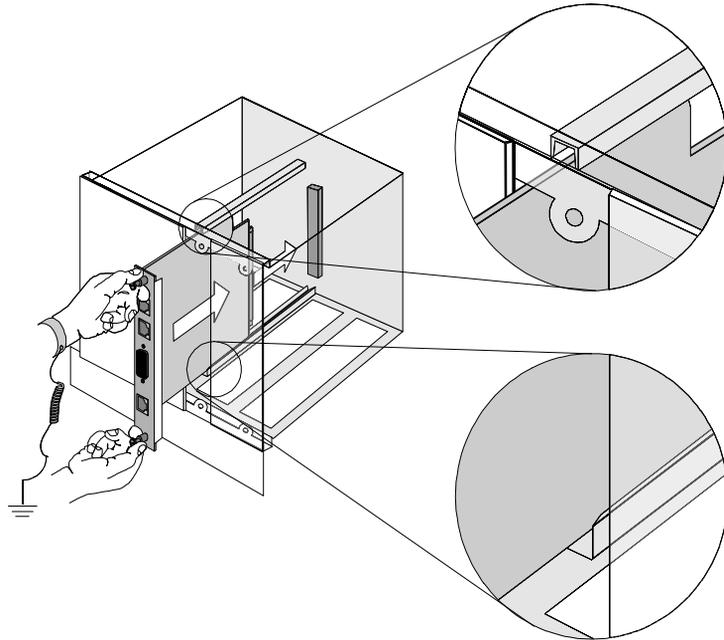
-  When the power is off, the NIC is in high impedance mode, which is different from the original NIC because it executed loopback mode.
  -  If you unplug and reset the NIC, be sure to unplug and reset the HiPer DSP NAC after resetting the NIC.
- 2 Select a slot at the rear of the Total Control chassis for installing the NIC.  
Install this NIC in slot(s): 1–17
-  For managed chassis, slot 17 is reserved for the Network Management Card (NMC) NIC.



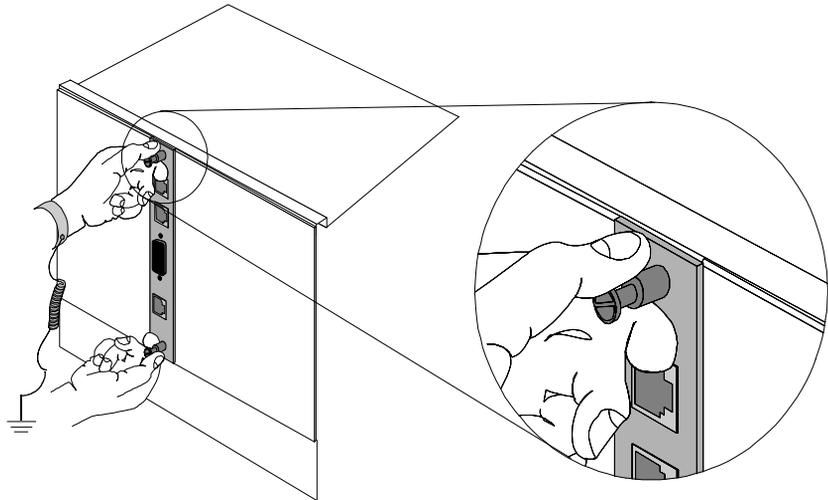
- 3 Use a #2 Phillips screwdriver to remove the safety panel covering this slot.



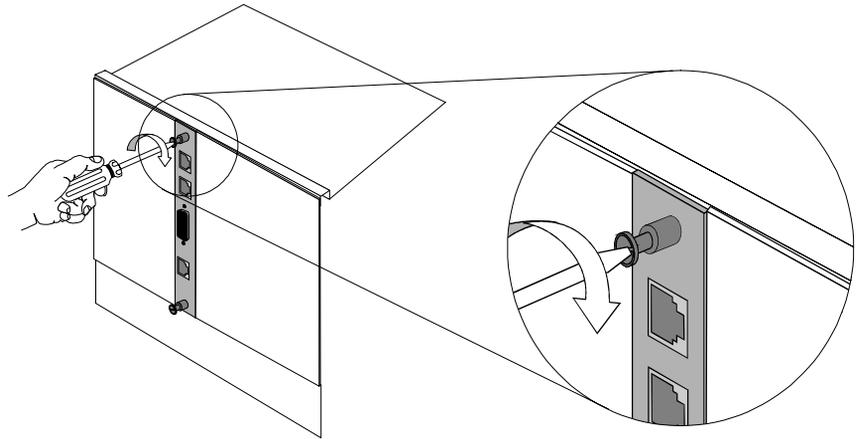
- 4 Insert the NIC between the slot's upper and lower card guides.



- 5 Slide the NIC into the chassis, until the front of the NIC is flush with the chassis.



- 6 Use a flat-head screwdriver to tighten the screws on the front panel.



- 7 Cover any unused chassis slots with safety panels.
- 8 Install the Network Application Card (NAC) corresponding to this NIC. Refer to the NAC's *Getting Started Guide* for more information.

---

## Installing In a 45 Amp Chassis

The HiPer DSP NIC and NAC are designed to function with a 70/130 Amp Total Control chassis. However, two HiPer DSP NIC and NAC sets can be installed in a 45 Amp chassis if the chassis meets the following requirements:

- An AC fan tray installed directly below the chassis
- A one "U" gap above the chassis and below the fan tray.
- Two power supply units (PSU)
- Twelve or less Digital Quad Modem cards
- One 486 NETServer
- One 486 Network Management Card (NMC)

# 3

## NETWORK INTERFACE CARD CABLING

This chapter provides information about the physical interfaces of the HiPer Digital Signal Processor (DSP) T1/E1 Network Interface Card (NIC) and instructions for accessing the corresponding Network Application Card (NAC) through the user interface (UI).

### Physical Interfaces

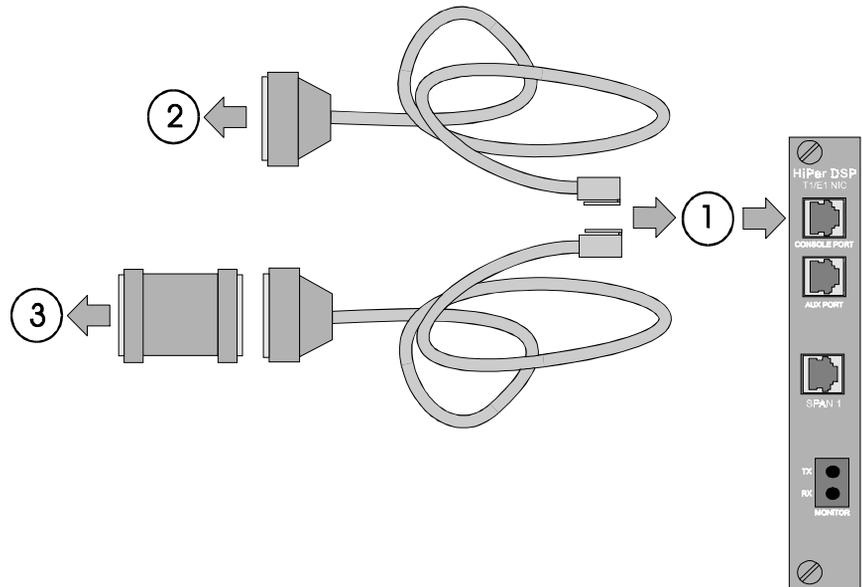
The HiPer DSP T1/E1 NIC has the following physical interfaces:



Callout Number	Interface Description
1	<p><b>Console Port:</b> RJ-45 DTE port</p> <p>Connect to this port to access the HiPer DSP NAC's UI. The port is configured for 9600 baud, 8 data bits, 1 stop bit, no parity.</p>
2	<p><b>AUX Port:</b> RJ-45 DTE port</p> <p>Connect to this port to perform a software download to the HiPer DSP NAC.</p>
3	<p><b>Span 1:</b> RJ-48C T1/E1 span line 1 interface</p> <p>Connect a T1 or E1 span line to this port.</p>
4	<p><b>Monitor:</b> Bantam Monitoring jack</p> <p>Connect span line monitoring equipment to this port for span 1 diagnostics.</p>

## Accessing the User Interface

To access the UI of the corresponding NAC, connect the following cables to the NIC's console port.



Callout Number	Description
1	RJ-45 connector to NIC's console port
2	DB-25 male connector to modem for remote operations
3	DB-25 female-to-female null modem adapter to PC or terminal COM port



# TECHNICAL SPECIFICATIONS

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## Certification

### T1 HiPer Digital Signal Interface

<b>EMI/RFI</b>	FCC 15A EN55022A
<b>Safety</b>	UL 1950 C-UL EN 60950 JATE
<b>Telco</b>	FCC 68 IC CS-03

### E1 HiPer Digital Signal Interface

<b>EMI/RFI</b>	FCC 15A EN55022A AUSTEL VCCI
<b>Immunity</b>	EN 50082-1
<b>Safety</b>	UL 1950 C-UL EN 60950 AUSTEL
<b>Telco</b>	CTR 4

**Regulatory  
Compliance  
Statements****United States****FCC Part 15 Compliance Statement**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

---

**Interface  
Specifications****Serial Ports**

<b>Electrical Specification:</b>	RS-232-C (EIA/TIA-232-E standard)
<b>Connector:</b>	RJ-45, 8 position modular jack
<b>Configuration:</b>	Data Terminal Equipment (DTE)
<b>Transmission Method:</b>	Unbalanced RS-232
<b>Transmission Rate:</b>	Console port: 9600 bps maximum Auxiliary port: 115,200 bps maximum

**Span 1 Port**

<b>Electrical Specifications:</b>	T1/E1 Span line interface
<b>Connector:</b>	RJ-48C, 8 position modular jack
<b>Specifications:</b>	<ul style="list-style-type: none"> <li>■ ANSI T1.408</li> <li>■ ITU G.736</li> <li>■ ITU G.823</li> <li>■ ETSI 300-233</li> <li>■ I.431/ ETSI ETS 300 011</li> <li>■ ANSI T1.403</li> <li>■ ITU G.703</li> <li>■ ITU G.775</li> <li>■ ETSI 300-166</li> <li>■ TBR-12</li> </ul>
<b>Framing:</b>	<p style="text-align: center;"><b>T1 (CH T1 and T1/PRI Application)</b></p> <ul style="list-style-type: none"> <li>■ Super Frame (SF) or D4</li> <li>■ Extended Super Frame (ESF)</li> </ul> <p style="text-align: center;"><b>E1/PRI Application</b></p> <ul style="list-style-type: none"> <li>■ CEPT CCS without CRC-4 (Used with VN-4 and some NET5 countries)</li> <li>■ CEPT CCS with CRC-4 (Used with NET5 countries)</li> </ul>
<b>Line Coding:</b>	<p style="text-align: center;"><b>CH T1</b></p> <ul style="list-style-type: none"> <li>■ Binary Eight Zero Code Suppression (B8ZS)</li> <li>■ Alternate Mark Inversion (AMI)</li> <li>■ Zero Code Suppression</li> </ul> <p style="text-align: center;"><b>T1/PRI</b></p> <ul style="list-style-type: none"> <li>■ Binary Eight Zero Code Suppression</li> </ul> <p style="text-align: center;"><b>E1/PRI</b></p> <ul style="list-style-type: none"> <li>■ High Density Bipolar 3 Zeros (HDB3)</li> </ul>
<b>Interfaces:</b>	<p style="text-align: center;"><b>CH T1</b></p> <ul style="list-style-type: none"> <li>■ DS1 (Long Haul Applications. Connecting CPE equipment to the Telco's T1 or Smart Jack up to 6000 feet away).</li> <li>■ DSX-1 (Short Haul Application. Connecting CPE equipment to the Telco's T1 or Smart Jack up to 600 feet away).</li> </ul>

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**Current Draw**

+5.2 VDC @ 600mA typical maximum

*Typical maximum refers to the maximum current draw under most typical configurations.*

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**Environment****Shipping and Storage**

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**Temperature** -25 to 75° C, -13 to 167° F

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**Relative Humidity** 0 to 100%, Non-condensing

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**Operating**

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**Temperature:** 0 to 40° C, 32 to 104° F

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**Relative Humidity:** 0 to 95%, Non-condensing

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**Physical Dimensions**

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	Inches	Centimeters
<b>Length:</b>	5.30	13.46
<b>Width:</b>	.79	2.00
<b>Height:</b>	6.90	17.53

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