

Copeland Communications Evaluation Board User's Guide

Features

- ❑ Supports all CCI Socket Modem functions
- ❑ RS-232, Digital Serial & Parallel Host Interfaces
- ❑ PCM Audio Support
- ❑ Phone and Common Socket Interface line-side interfaces
- ❑ On-board modem status indicators
- ❑ Internal 3.3 and 5 volt modem power supply
- ❑ Speaker
- ❑ Voice & PCM audio support
- ❑ Supports all CCI socket modules
- ❑ RS-232 via DB-8 connector
- ❑ Supports RTS/CTS and XON/XOFF flow control
- ❑ CAN support via header and DB-9 connector
- ❑ RJ-45 for Ethernet network connection
- ❑ Convenient accessible cabling
- ❑ Mounting holes for mounting into prototype equipment
- ❑ 9V DC power input

Description

The socket module evaluation board is designed to support current and future Copeland Communications Socket Modules including the complete line of World Modems, CAN, Ethernet and wireless modules. The board provides a flexible platform for evaluation of CCI Socket Modules and system prototyping.

The evaluation board provides convenient connections to all CCI Socket Modules. Specific hardware is provided to support RS-232, digital serial and parallel host interfaces. Industry standard connectors are provided to interface to telephone, CAN and Ethernet networks.

This guide references the World Modem II, World Modem NET, World Modem FAX and World Modem Secure products.

Block Diagram

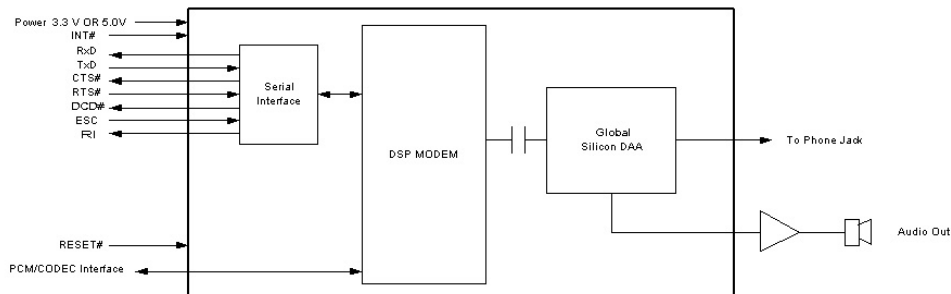


Figure 1 World Modem II / NET

NOTE: The World Modem NET and World Modem Secure do not have a PCM/CODEC or Audio output interfaces.

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Quick Start

The following steps will describe how to setup the Evaluation Kit and connect to another modem.

STEP 1: Connect the Serial Cable to the Evaluation Board and then the PC.

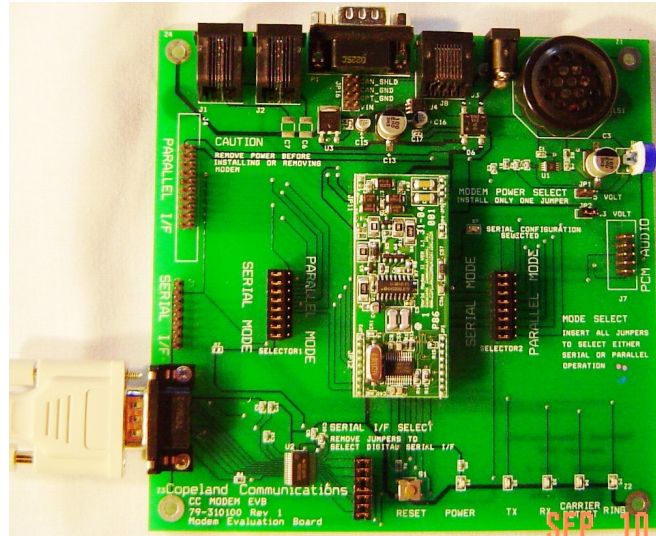


Figure 1 Serial Connection

STEP 2: Connect the Phone line to either of the RJ-11 Connectors. They are labeled J1 and J2. It doesn't matter which of these two connectors are used.

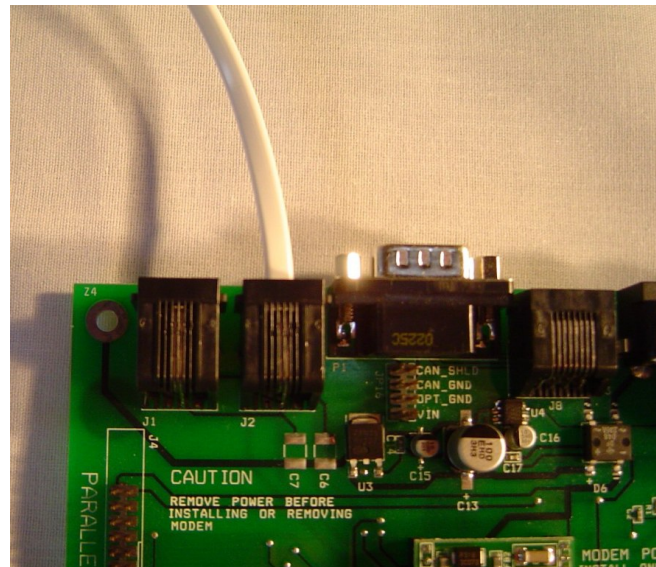


Figure 2 RJ-11 Connection to Evaluation board

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STEP 3: Connect the other end of the phone line to the phone jack or a phone line simulator such as the Teltone® TLS-3 (www.teltone.com). If a line simulator is used, connect a second modem to the other line on the simulator.



Figure 3 RJ-11 Connection to line simulator

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STEP 4: CCI ships all evaluation kits with the modems populated on the board already. To reinsert a removed modem or to exchange for another, be sure to connect pin1 of the module to pin 1 of the Evaluation Board. (Pin 1 is located on the JP11 connector).

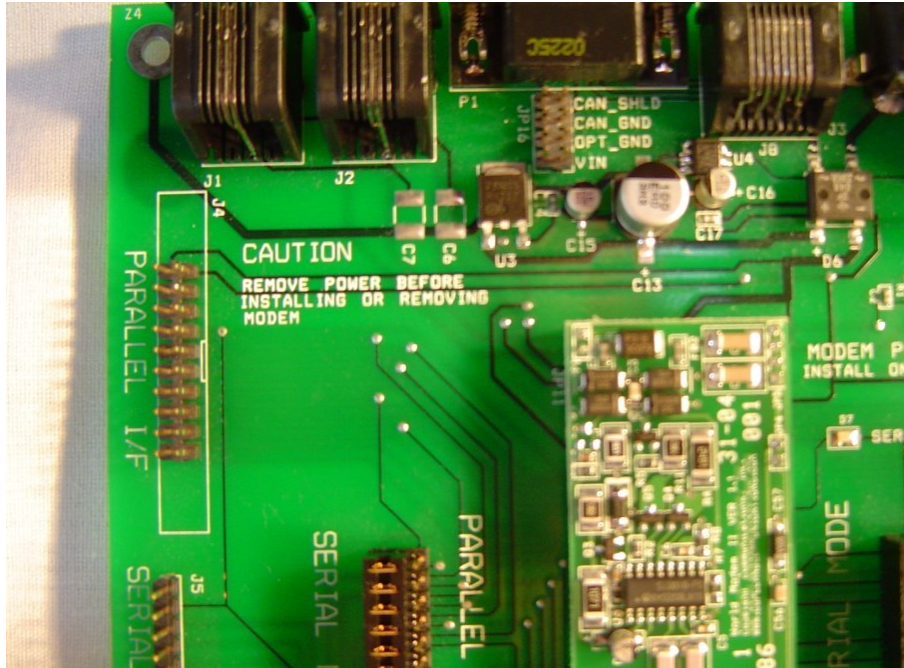


Figure 4 Pin 1 location

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STEP 5: Set the power jumper to either 5V or 3.3V.



WARNING: Placing a 5V supply to a 3.3V modem will cause damage. This damage isn't always a hard failure, but can manifest itself as a failure to detect or dial.



WARNING: Only place ONE jumper for power selection. Placing a jumper on both connections will damage the Modem and/or the evaluation kit.

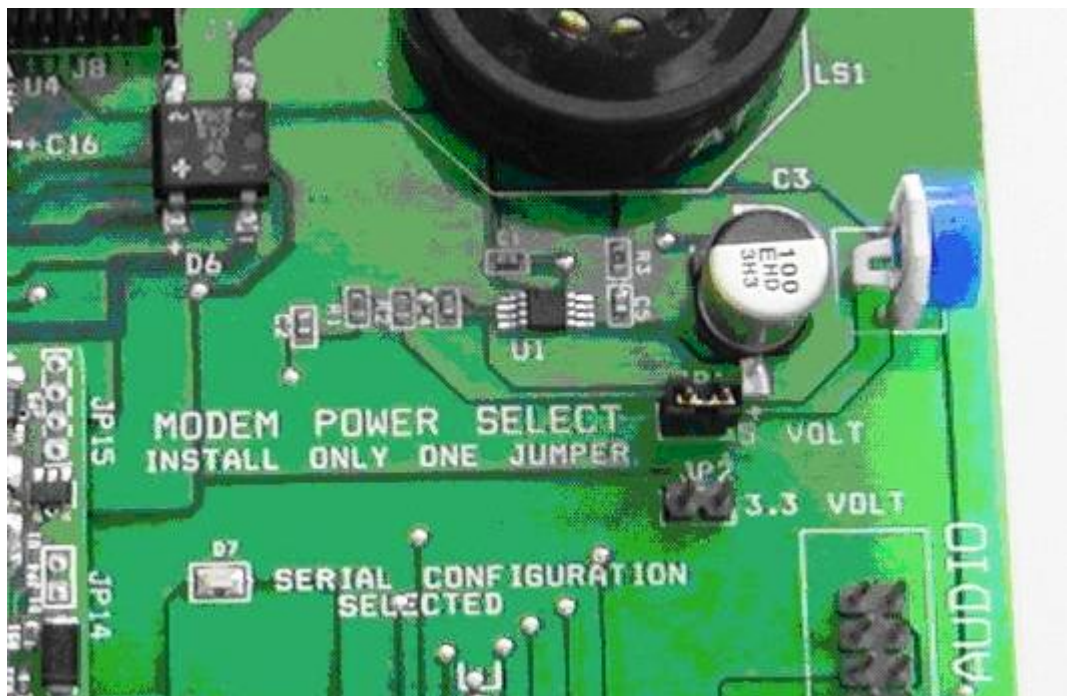


Figure 5 Power selection

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STEP 6: Connect the power supply to the board and to the wall outlet. At this point you should see the POWER LED lit.

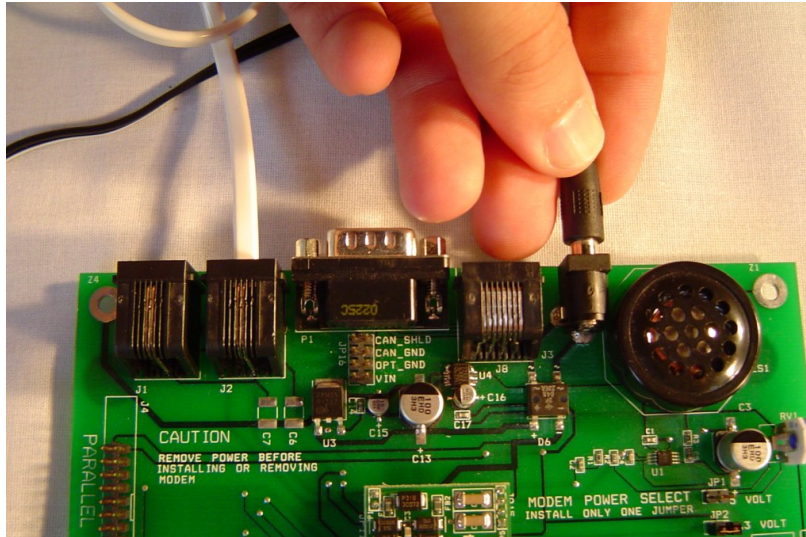


Figure 6 Power supply

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STEP 7: In Windows™, start HyperTerminal. (Start->Accessories->HyperTerminal). Create a new connection. Name the connection and select the COM port connected to the Evaluation Kit.

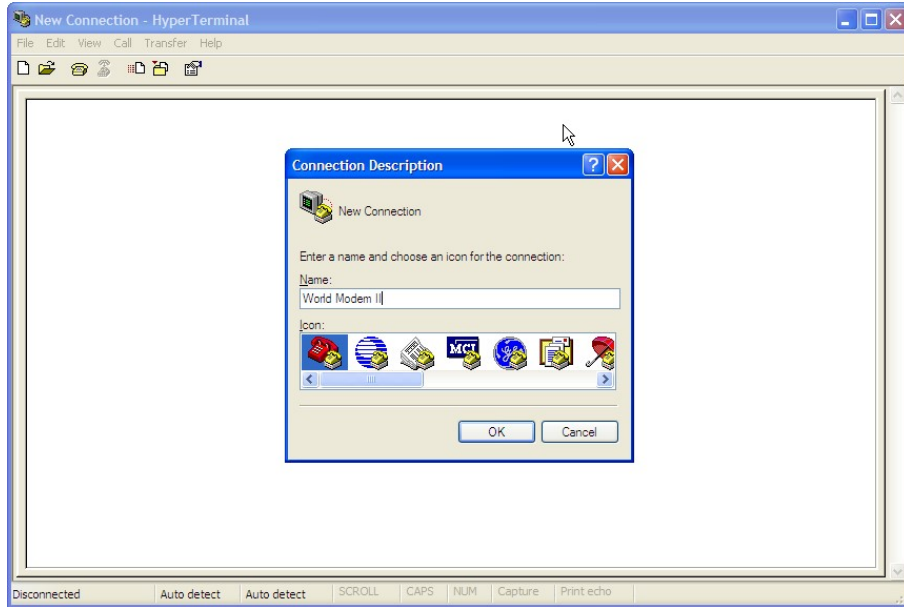


Figure 7

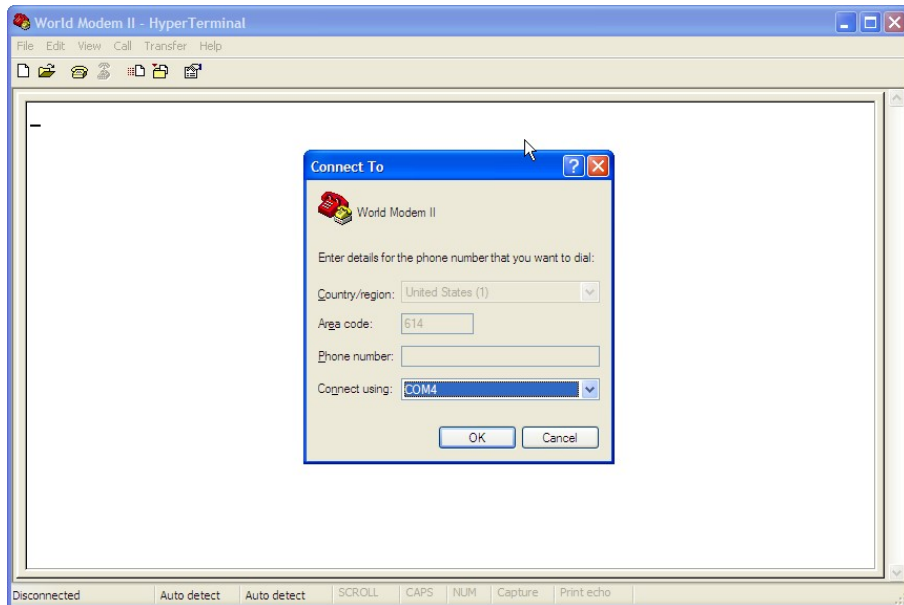


Figure 8

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STEP 8: Set the parameters for the serial port as shown below.

NOTE: World Modem Secure will only communicate at 2400 baud. The World Modem NET defaults to 19200 baud. World Modem II and FAX use autobaud and may be set up to 115,200 baud.

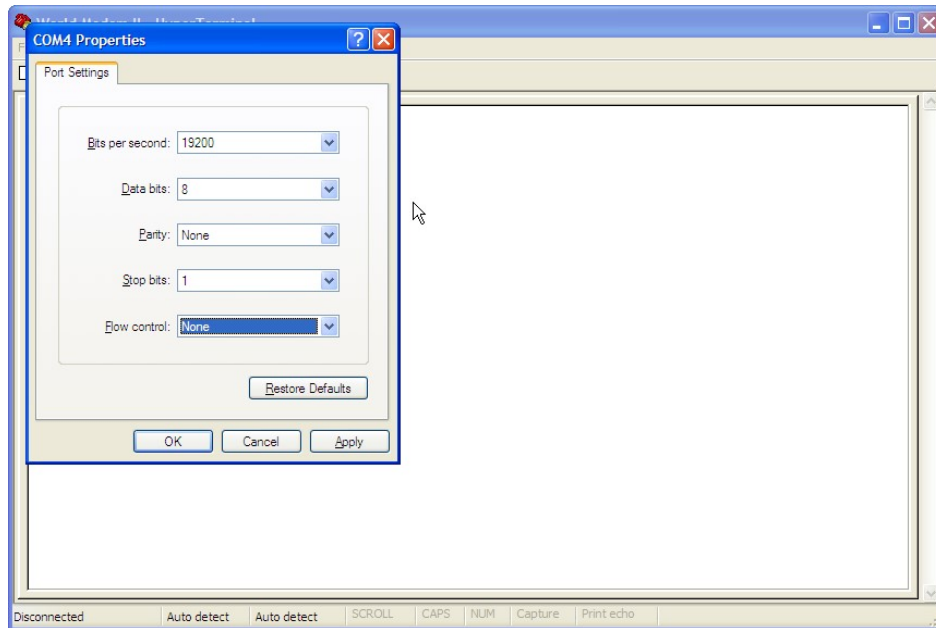


Figure 9

STEP 9: (World Modem II) To dial another modem, type "ATDT" plus the number you want to dial, followed by a carriage return. For this example, the modem being dialed is at "104" on the phone line simulator. The modem on the other end must either be set to auto answer or must issue an "ATA" plus carriage return to answer the call. Figure 13 shows the response after a connection is made.

STEP 9: (World Modem NET) All commands to the World Modem NET must start with AT+I. To communicate directly with the modem chipset, enter "AT+IMCM <cr>". This will bypass the Internet chipset. Enter "+++>" to return to the Internet chipset. To dial another modem, type "ATDT" plus the number you want to dial, followed by a carriage return. For this example, the modem being dialed is at "104" on the phone line simulator. The modem on the other end must either be set to auto answer or must issue an "ATA" plus carriage return to answer the call. Figure 13 shows the response after a connection is made.

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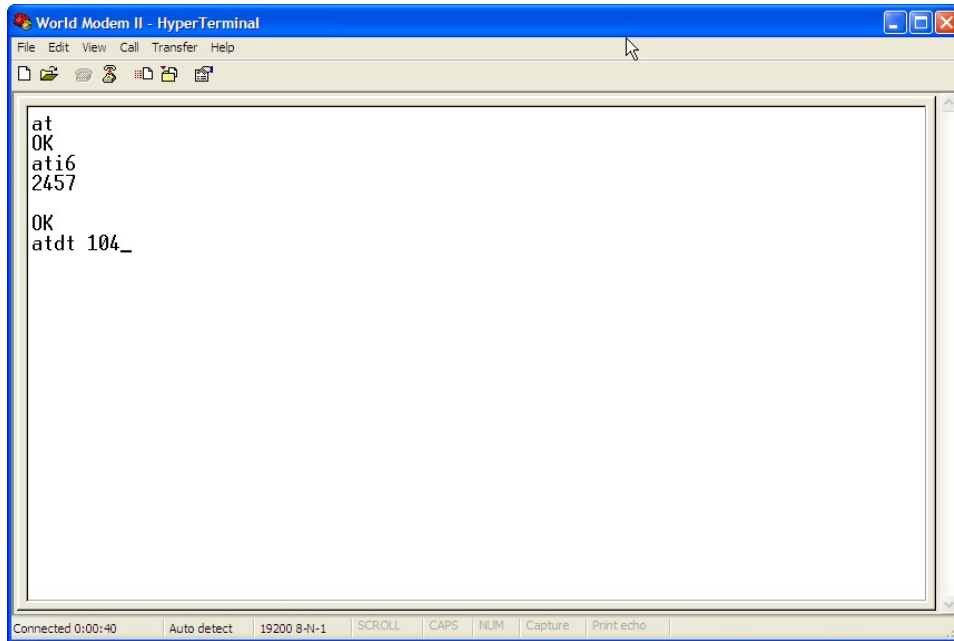


Figure 10

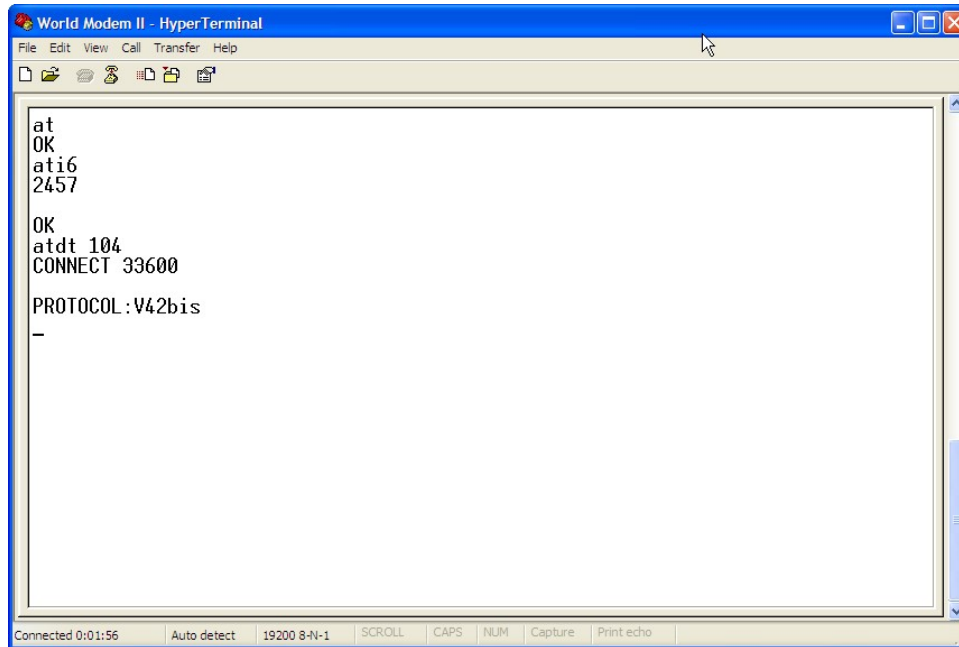


Figure 11

After the connection is established, the modems are automatically put into data mode. In this mode, anything typed in either terminal will appear on the other terminal window. Figure 14 shows the connected modem receiving “Hello, World!”. Figure 15 shows “Hello, back!” sent from the modem named “Winbook Modem”.

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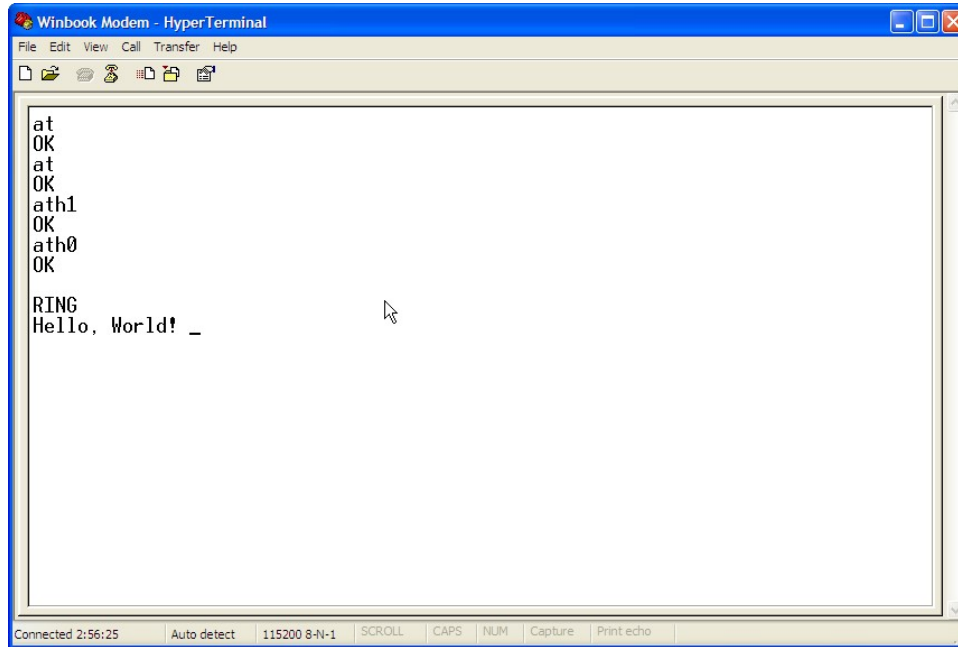


Figure 12

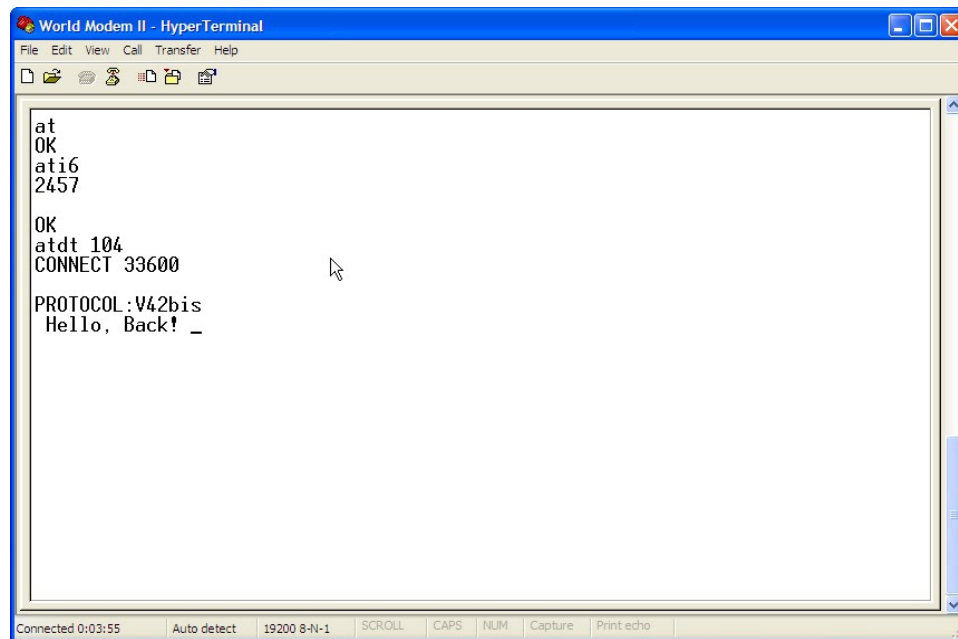


Figure 13

STEP 10: To disconnect, wait one second, type “+++” followed by another second delay. (Note: the “+++” will be displayed in the other modem’s display). This will put the modem into command mode. In this mode, the modem will again accept AT commands. To disconnect type “ATH” followed by carriage return.

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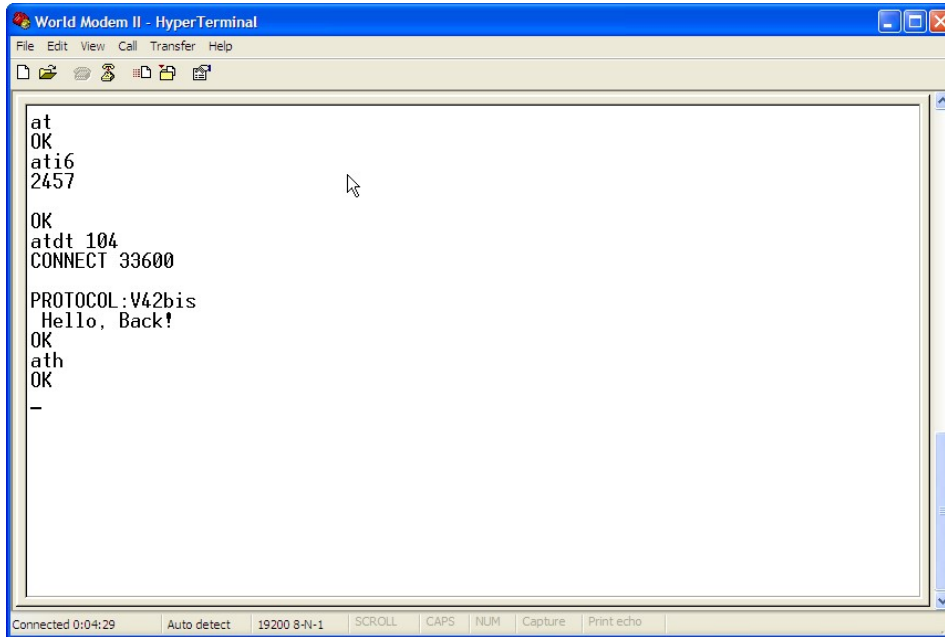


Figure 14

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Detailed Specifications

The DSP processor determines the line speed of the modem. The DAA is line powered and isolated from the DSP and host side of the system by high voltage isolations capacitors. See the World Modem or World Modem NET data sheet for detailed description of circuit operation and system interface requirements.

The evaluation board specifications are as follows.

Item	Specification
Data Rate	
56K bps-28K	V.90
2400 bps – 33.6K bps	V.34
2400 bps – 14.4K bps	V.32bis
1200bps	V.22, V.23 or Bell 212A
300 bps	V.21 or Bell 103
Data Format	
Bit format	Selectable 8,9,10 or 11 bits per character
Compatibility	V.23, V.22bis, V.21, Bell 212A & Bell 103
Control	AT command set
Host Interface	
Serial	TTL - 8,9,10 & 11 bit asynchronous data @ 2400-19.2Kbps rate
	RS-232 with hardware flow control
Parallel	8 bit interface to data and control registers with 12 deep FIFO
Flow Control	CTS, RTS, DCD, RI
Interface Select	Two multi-pin jumper blocks with LED indicator
Features	
LED Indicators	
POWER	Power is applied to board
TXD	Transmit Data
RXD	Receive Data
CD	Carrier Detect
RI	Ring Indicator
Power Requirements	
Input Voltage	7-18 VDC
Output voltage	5VDC 500mA max

Table 1

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Host Interface

The evaluation board supports RS-232 serial, TTL serial interfaces with hardware flow control.

RS-232 Interface

The user can select the RS-232 by installing the RS-232 Select Jumpers on JP3 (Labeled 'SERIAL I/F SELECT'). This connects the socket module serial interface signals to the on-board RS-232 interface. The output of the RS-232 interface IC connects to the DB-9F connector. The RS-232 interface is fully voltage compliant and is configured as DCE (Data Communication Equipment).

Note: The RS-232 and digital serial interfaces cannot be used at the same time.

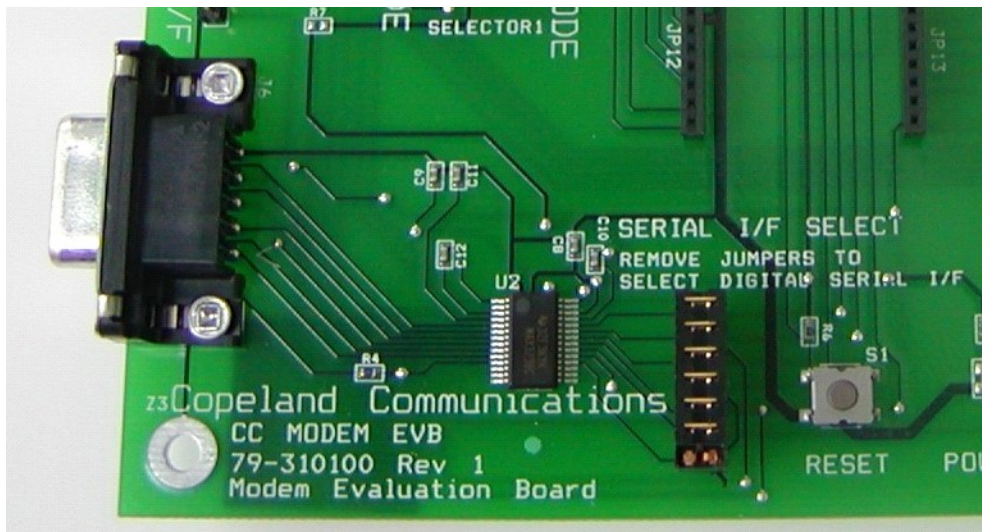


Figure 15

DIGITAL SERIAL INTERFACE

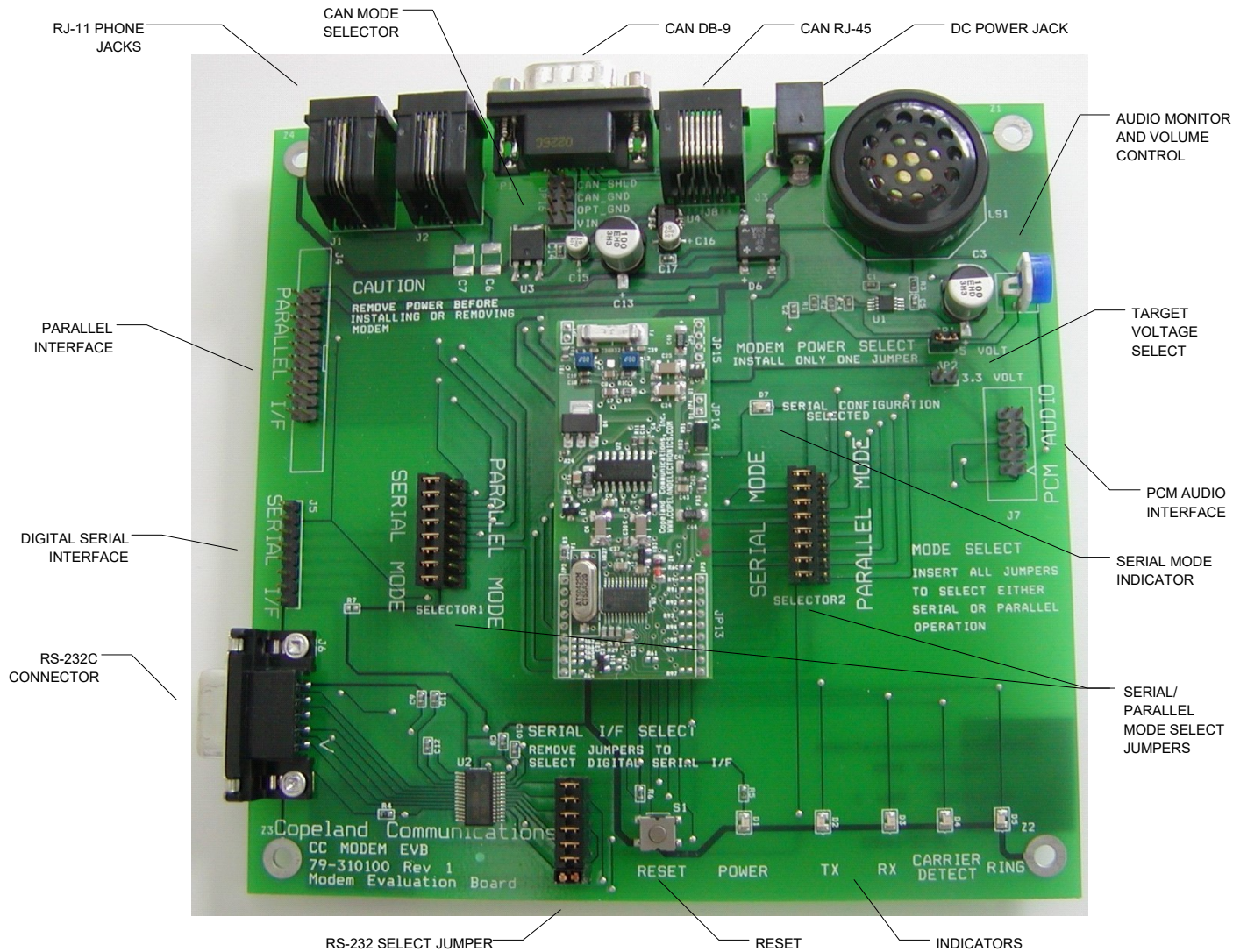
The serial interface consists of serial receive and transmit data, flow control signals plus power and ground. These are digital CMOS versions of the RS-232 interface signals. The voltage level is set by the voltage selection on the evaluation board or module installed.



WARNING: A 5V power input on 3.3V Modems WILL damage the device.

See the module datasheet for details of the user interface signals.

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QUICK STATE GUIDE

Your evaluation board is delivered configured for RS-232 serial operation.

	Option	Setting
Modem (Default configuration – RS-232 19.2KBPS N81)		
	Selector 1	Serial
	Selector 2	Serial
	Serial LED Indicator	Lit
RS-232 mode selected	Serial I/F Select	Installed
Target Voltage set to 5 volts	Module Power Selector	5 volt position
Modem Settings	Default host speed	19.2kbps default

Table 2

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Mechanical

The evaluation board is designed to support the entire family of Copeland Communications modules. These modules are designed on a dual in line package (DIP) configuration with 24mm row spacing and 2mm pin pitch.

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Ordering

Evaluation Kit Including evaluation board, sample module, serial cable, AC adapter and users guide	CCI Order Number
Sample Module Included:	
9600 baud serial modem	EVB-9600
14.4 kb serial modem	EVB-14.4K
33kb serial modem	EVB-33K
56 kb serial modem	EVB-56K
World Modem NET 56K	EVB-56KNET
World Modem Secure	EVB-SECURE
World Modem FAX 33K	EVB-FAX
No sample module	EVB-None
Options	Add suffix
European/Asian Version (230 VAC)	- 230 VAC

Table 3