

# PCM-3524

LVDS Modules

PCM-3524

## Installation Guide

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This Installation Guide tells how to set up the PCM-3524 hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all the safety precautions before you begin the installation procedure.

## Safety Precautions

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**Warning!** *Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.*



**Caution!** *Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.*



## Introduction

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has designed an ingenious solution to extend the reach of LCD panel monitors. By employing LVDS technology and using transmitting and receiving units, LCDs can now be placed up to 12 meters away from the computer VS. 30-50 cm for traditional configurations.

### How it works

This solution comes in three parts: the transmitter, the cable, and the receiver. The transmitter (PCM-3524T) is a PC/104 size module which plugs into the CPU board or backplane. The cable connecting the transmitter to the receiver comes in various lengths (3 m, 5 m, 8 m, 10 m, and 12 m). The receiver (PCM-3524R) plugs into the LCD panel using the original LCD cable. This transmitter-cable-receiver combination can be inserted into any CPU card/board-LCD product combination, allowing for long-distance LCD signal transmission of up to 12 meters with no interference.

## Feature

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- 20 to 65 MHz shift clock support
- Transmitter strobe falling edge
- Single power supply (3.3V or 5V)
- Chipset (Tx + Rx) power consumption <500mW (typ)
- Power-down mode (< 1.0 mW total)
- Single pixel per clock XGA (1024 x 768) ready
- Supports VGA, SVGA, XGA and higher address ability
- Up to 340 Megabyte/sec bandwidth
- Up to 2.6 Gbps throughput
- 290 mV swing LVDS devices for low EMI
- Falling edge data strobe Receiver
- Compatible with TIA/EIA-644 LVDS standard
- ESD rating > 7 kV

## PCM-3524 LVDS Module

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The LVDS Module is a interface devices specifically configured to support data transmission from graphics controller to LCD panels. The technology employed, LVDS (Low Voltage Differential Signaling), is ideal for high speed, low power data transfer. This enables the implementation of high end displays such as SVGA (800 x 600) and XGA (1024 x 768).

The predominant issues limiting performance in these high end displays are speed, power, and EMI considerations. The user is also concerned with the physical interface to the display; the fewer wires the better. The LVDS Module addresses these issues with LVDS technology and muxing TTL signals to higher speed LVDS signals which allows a substantially narrower interface between host and display. In a typical application (see figure 1), TTL-level RGB and control data from the graphic controller arrives at the inputs of the LVDS transmitter module. The parallel TTL data is muxed and converted to LVDS. The outputs of the LVDS transmitter module drive the LVDS data on the cable which connects the motherboard to the display. The LVDS data traverses the cable to the LVDS receiver module at the display. The received data is then demuxed, converted back to TTL levels and sent to the inputs of the timing controller. This muxing of parallel TTL signals allows the data to travel at faster speeds across a narrow interface, addressing needs associated with high bandwidth communication.

The LVDS Module consists of transmitters (TTL to LVDS) and receivers (LVDS to TTL) designed to support 36-bit color displays. The FPD Link product family includes 5V and 3.3V chipsets that supports a frequency range of 20 MHz to 65 MHz. (See Figure 2)

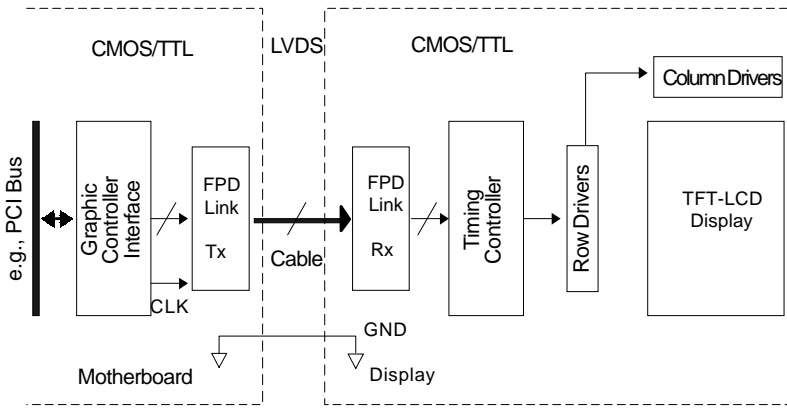


Figure 1. LVDS Module Application (36-bit Color)

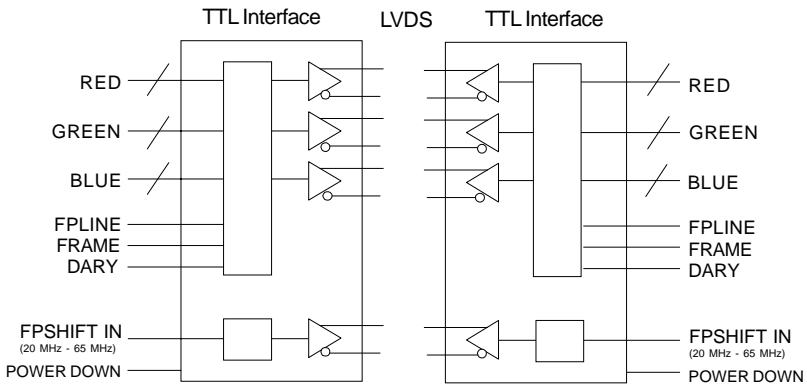


Figure 2. LVDS Module Application (36-bit Color)

## LCD connector (50-pin)

LCD connector (50-pin)

Pin	Signal	Pin	Signal
1	NC	2	NC
3	GND	4	GND
5	TPVCC	6	TPVCC
7	TENAVEE	8	GND
	(Transmitter only)		
9	TP0	10	TP1
11	TP2	12	TP3
13	TP4	14	TP5
15	TP6	16	TP7
17	TP8	18	TP9
19	TP10	20	TP11
21	TP12	22	TP13
23	TP14	24	TP15
25	TP16	26	TP17
27	TP18	28	TP19
29	TP20	30	TP21
31	TP22	32	TP23
33	TP24	34	TP25
35	TSFLK	36	TFLM
37	TM	38	TLP
39	GND	40	TENABKL
			(Transmitter only)
41	TP26	42	TP27
43	TP28	44	TP29
45	TP30	46	TP31
47	TP32	48	TP33
49	TP34	50	TP35

## LCD connector (MDR-10226)

LCD connector (MDR-10226)

Pin	Signal	Pin	Signal
1	TX0-	14	TX0+
2	GND	15	TX1-
3	TX1+	16	GND
4	TX2-	17	TX2+
5	GND	18	TXCK1-
6	TXCK1+	19	GND
7	LVDSVCC	20	LVDSVCC
8	GND	21	TX3-
9	TX3+	22	GND
10	TX4-	23	TX4+
11	GND	24	TX5-
12	TX5+	25	GND
13	TXCK2-	26	TXCK2+