

Advantech Device Specific Help

Advantech PCL-830 I/O Cards, V 2.0

The Advantech DLL driver supports the operation of ADVANTECH data acquisition cards and signal conditioning boards. The following table lists the cards and functions supported:

TABLE 1: Advantech DLL Driver Software Support

Hardware Type	DLL Driver	A/D	D/A	DIO	TEMP	COUNTER	ALARM
PCL-830	adPCL830.drv	NO	NO	YES	NO	YES	NO

A/D=ANALOG INPUT, D/A=ANALOG OUTPUT, DIO=DIGITAL I/O,
TEMP=TEMPERATURE MEASUREMENT

All cards listed can be used in an IBM PC or compatible. A series of wiring terminal boards and signal conditioning boards, listed below, are also available for making your applications easier to implement:

- * PCLD-774 Analog Expansion Board
- * PCLD-786 AC/DC Power SSR and Relay Driver Board.
- * PCLD-7216 SSR I/O Module Carrier Board
- * PCLD-7224 SSR I/O Module Carrier Board
- * PCLD-785 Relay Output Board.
- * PCLD-885 Power Relay Output Board
- * PCLD-782 Isolated D/I Board.
- * PCLD-7115 Wiring Terminal Board
- * PCLD-780 Wiring Terminal Board.
- * PCLD-880 Industrial wiring Terminal Board.

I/O CARD FUNCTIONAL DESCRIPTION

10 Counter/Timer Channels (Channels 0-9)
16 Channels (bits) of Digital Inputs
16 Channels (bits) of Digital Outputs

HARDWARE CONFIGURATION

Before an acquisition board can work properly with the DLL driver software, it must be configured correctly. You must determine the hardware options (input range(s), I/O address, etc.) which suit your particular requirements. On all ADVANTECH boards, configuration is a matter of setting jumpers and switches. Read the manual that comes with your ADVANTECH board in conjunction with this help to determine how to configure the hardware. All ADVANTECH boards are shipped with factory default settings. If the default configuration is appropriate for your system, no additional set-up is required.

Configuring the PCL-830

Configure the base address according to instructions in your PCL-830 user's manual. The PCL-830 provides ten timer/counter channels and 16 bits of digital I/O (2 8-bit channels).

Configure the on-board frequency time base. An on-board frequency source(F1, F2, F3, F4 and F5) is provided. The corresponding F1-F5 frequencies are:

F1 F2 F3 F4 F5

1MHz 100KHz 10KHz 1KHz 100Hz

Note that the DLL does not support interrupts, so interrupt jumper settings can be ignored.

In reference to the Advantech API functions for event counter, pulse output, or frequency counter/measurement operation (all supported), hardware "gating", in which the counter may be started by a separate external hardware input, is supported by the driver DLL.

Gating supported:

- 1) No Gating
- 2) Active High Level Gating
- 3) Active Low Level Gating

Event Counter:

Counter channels 0 - 9 all can function as a rising edge event counter . When using the API function to start the counter/timer, you may start the counter at any value between zero and 2^{32} . Connect the your external event generator to the clock input of the desired counter. If hardware "gating", in which the counter may be started by a separate external hardware input, is desired, choose a gating type (above), and use an external device to trigger the gate input of the counter.

Pulse Generator:

Counter channels 0 - 9 all can function as an arbitrary duty cycle pulse generator. You should select an on-board frequency (F1-F5) source that is closest to the desired output frequency for pulse output. The pulse waveform will then be generated on the output pin of the counter used. If hardware "gating", in which the counter may be started by a separate external hardware input, is desired, choose a gating type (above), and use an external device to trigger the gate input of the counter.

Frequency Counter:

By using two counter/timer channels, a highly accurate frequency measurement device can be attained with the PCL-830. Channels 0 - 8 function as possible input sources for frequency measurement from 1 HZ to 65535 HZ. Channel 9, the last channel on the card, is reserved and used as a "gate period" counter. For frequency measurement, the on-board time base is used and divided by the "gate period" counter channel. Since generally a long gating period is desirable, choosing F5 (100hz) will allow for longer gating periods. You must connect a jumper between the gate period counter output, and the "gate input" of the desired frequency measurement counter. Then wire your external frequency generator to the frequency measurement counter's "clock source" input. If hardware "gating", in which the counter may be started by a separate external hardware input, is desired, choose a gating type (above), and use an external device to trigger the gate input of the gate period counter (fixed at channel 9 by DLL).

