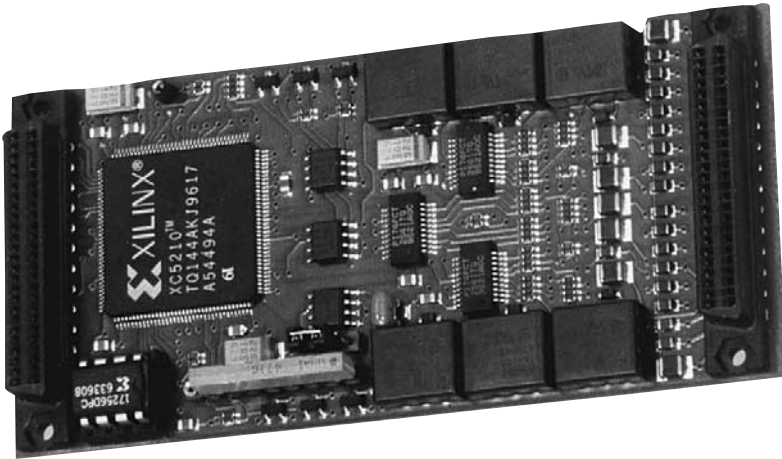


XIP-2480

Counter/Timer



FEATURES

- Six 16-bit (three 32-bit) counter/timers
- Event counters
- Watchdog timer with isolated relay output
- Pulse-width or periodic rate monitor

Output waveform generator

- Continuous pulse
- Single pulse
- Continuous square waveforms

Interrupt support

- Watchdog timeout
- Event count complete
- Pulse-width or rate measurement complete
- Pulse wave complete
- Successive waveform generation

BENEFITS

- Most configuration is handled by a single register which minimizes programming.
- Timer outputs support high voltage/currents.
- Built-in clamp diodes provide added protection when driving inductive loads.
- Pull-ups are socketed for easy adjustment.

XIP-2480 modules provide up to six counter/timer channels for counting events, generating waveform control signals, measuring pulse-widths or periodic rates, and monitoring operations.

Support for internal or external triggering simplifies the synchronization of operations to specific events. Counter functions can use internally generated clocks or an externally supplied clock.

PRODUCT SPECIFICATIONS AND RATINGS

Environmental

	Operating	Nonoperating
Thermal	0 to 70°C	-55 to 125°C
Humidity	5% to 95% RH, noncondensing	5% to 95% RH, noncondensing
Isolation	Relays provide individual isolation up to 125V AC with continuous 1A currents. Withstands 1500V AC for 60 sec. Counters not isolated from each other.	
Immunity	<ul style="list-style-type: none"> • RFI and EMI resistant • ESD and EFT protection 	<ul style="list-style-type: none"> • RFI and EMI resistant • ESD and EFT protection
Surge withstand capability (SWC)	No damage when tested per ANSI/IEEE C37.90-1978	
Rad. emissions	Meets EN50081-1, Class B equipment	

Hardware

Power	<ul style="list-style-type: none"> • +5V ($\pm 5\%$): 255mA maximum • $\pm 12V$ ($\pm 5\%$) from P1: 0mA (not used)
Speed (with 8MHz internal clock)	<ul style="list-style-type: none"> • Max. output pulse/square wave freq.: 4MHz • Minimum event pulse width: 130nS • Minimum pulse width measurement: 250nS • Minimum period measurement: 250nS
Mode accuracy (with external clocking)	<ul style="list-style-type: none"> • Waveform generation: Period is $\pm 62nS$ • Watchdog: Timeout occurs within ± 1 clock cycle • Pulse/period measurement: ± 1 clock cycle
Internal clocks	Programmable 1, 4, or 8 MHz
External clocks	Separate clock input for each counter supports frequencies up to 7 MHz
Counter trigger	External inputs for triggering counter functions. Input level is TTL or CMOS compatible. $V_{ih}=2.0V$, $V_{il}=0.8V$. Inputs are buffered and include 4.7K ohms pull-ups to +5V.
Input voltage range	-0.25 to 5.25V
Input requirements	<ul style="list-style-type: none"> • 2.0V DC minimum high level • 0.8V DC maximum low level • 10μA maximum current.
Output	Nonisolated open drains of N-channel mosfets with socketed 4.7K ohms pull-up resistor SIP. Drains protected to 60V DC and sink up to 250mA each.
Output range (low side switch)	0 to 5V with internal supply. 0 to 60V with pull-ups to external supply.
Output open drain pull-ups	A 4.7K ohms pull-up resistor SIP. Power limited to 0.15W/resistor.
Output relays	SPDT (Form C) electromechanical relays (one per counter) controlled in watchdog timer mode. Contacts rated to 125V AC, 1A.

IP Compliance (ANSI/VITA 4)

- Meets all written IP specs per ANSI/VITA 4-1995
- IP data transfer cycle types supported: input/output (IOSel*), ID read (IDSel*), interrupt select (INTSel*)

Access times (8MHz clock)

- Read/write cycles: 0 wait states (250ns cycle)
- 1 wait state (375ns cycle) to read the counter readback register

I/O Pin Connections

Pin	Description	Pin	Description	Pin	Description
01	External Supply	18	Input4	35	2A (N.O.)
02	Common	19	Clock4	36	2C
03	Trigger1	20	Output4	37	2B (N.C.)
04	Input1	21	Trigger5	38	3A (N.O.)
05	Clock1	22	Input5	39	3C
06	Output1	23	Clock5	40	3B (N.C.)
07	Common	24	Output5	41	4A (N.O.)
08	Trigger2	25	Common	42	4C
09	Input2	26	Trigger6	43	4B (N.C.)
10	Clock2	27	Input6	44	5A (N.O.)
11	Output2	28	Clock6	45	5C
12	Trigger3	29	Output6	46	5B (N.C.)
13	Input3	30	Common	47	6A (N.O.)
14	Clock3	31	No connection	48	6C
15	Output3	32	1A (N.O.)	49	6B (N.C.)
16	Common	33	1C	50	Shield
17	Trigger4	34	1B (N.C.)		

ORDERING INFORMATION

Order Number	Description
XIP-2480-006	Six 16-bit (three 32-bit) counter/timers

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