SPECTRUM
SYSTEMENTWICKLUNG MICROELECTRONIC GMBH

Extra I/O Option for all Boards of the MI.xxxx Series

- **24 additional static digital I/O**
- **4 additional static analogue outputs**
- **Signals available on extra slot bracket or internally**
- **Digital I/O: software selectable to input or output in groups of eight bit**
- **Analogue outputs: ±10 V with 12 bit resolution**

General

The extra I/O module is a piggyback module for all boards of the MI.xxxx series. It fits in the on-board expansion slot at the rear end of the board. With this simple-to-use enhancement it is possible to control a wide range of external instruments. The extra I/O module could be used instead of a complete Multi I/O board from third party. It is fitted well for OEM solutions and also for special applications.
There are two versions available. The –xmf version offers all 24 digital I/O and the 4 analogue outputs with ±10 V on an extra bracket. It is used to connect external instruments to the system. The –xio option only uses a small internal flat ribbon connector with 16 digital I/O. With this it is possible to control internally connected instruments.

Applications

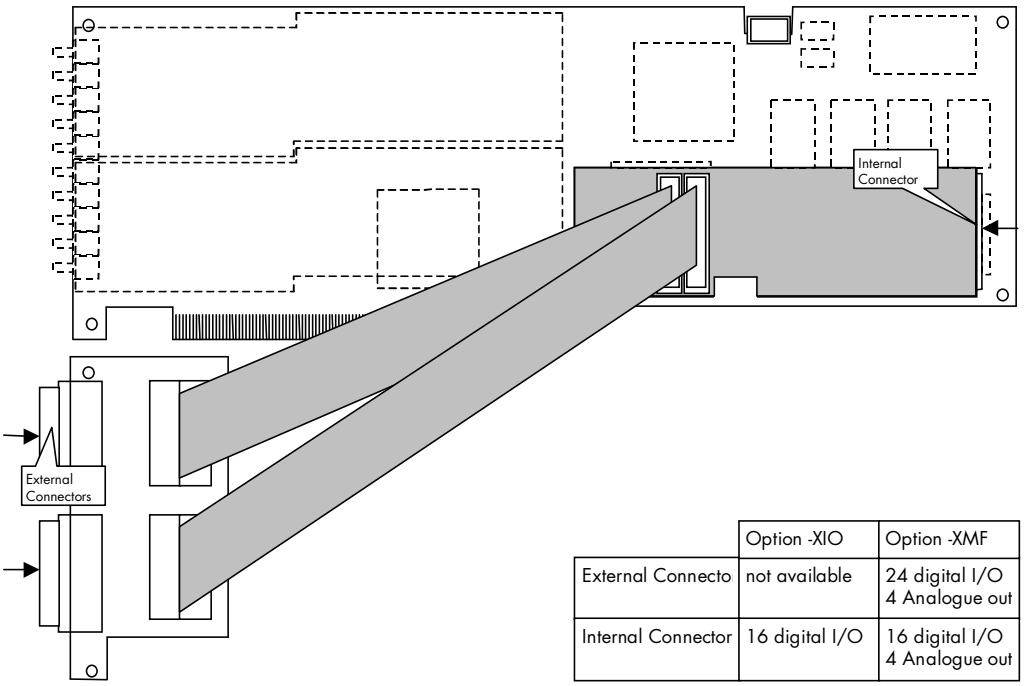
The extra I/O option is useful if an external amplifier should be controlled, any kind of signal source must be programmed, an antenna must be adjusted, a status information from external machine has to be obtained or different test signals have to be routed to the board.

Benefits

Compared to a third-party multi I/O board:

- cost-reduction
- reduction of needed slots and space
- easy to program
- same software interface as MI.xxxx boards
- complete solution from one supplier

Placement



	Option -XIO	Option -XMF
External Connecto	not available	24 digital I/O 4 Analogue out
Internal Connector	16 digital I/O	16 digital I/O 4 Analogue out

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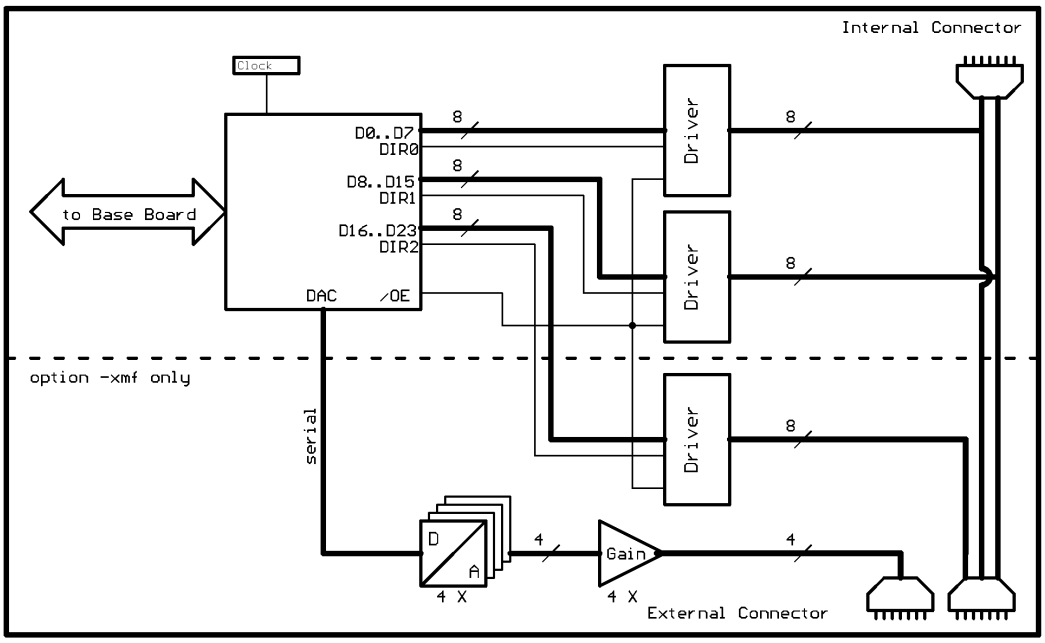
Hardware block diagram



Technical data

Digital I/O			
channels	24	output current (high level)	≤ -15 mA
output voltage high level	> 2.4 V (typ. 3.6 V)	output current (low level)	≥ +24 mA
output voltage low level	< 0.5 V	input current (high level)	≤ 0.4 mA
input voltage high level	> 2.0 V	input current (low level)	≤ 0.1 mA
input voltage low level	< 0.8 V	max. switching frequency	≥ 50 kHz

Analogue outputs	
channels	4
voltage range	-10 V ... +10 V
max. output current	10 mA
resolution	12 bit (1 LSB = 5 mV)
max. switching frequency	5 kHz
offset error	≤ ±20 mV (4 LSB)
gain error	≤ ±2 %

Power consumption	350 mA @ +5 V	(no termination)
Width (version –xio)	1 full size slot	
Width (version –xmf)	2 full size slots	(one PCI connector used)
External connector	40 pole Hirose FX2	
Internal connector	26 pole flat ribbon	

It is not possible to use this option together with the timestamp or star-hub option.

Order Information

Option –xio	Extra I/O with 16 digital I/O with internal connector	MI.xxxx-xio
Option –xmf	Extra I/O with 24 digital I/O and 4 analogue outputs with external connector+cables	MI.xxxx-xmf
Extra cable	40 pole flat ribbon cable with connector for all digital I/O on MI.xxxx boards	MI.xxxx-dcab