

# GPIO-MM FAMILY

## DIGITAL I/O AND COUNTER / TIMER



- Multiple configurations and pin definitions
- Up to 96 digital I/O pins with programmable direction
- Up to 10 16-bit counter / timers with a 40MHz clock with 8 fixed digital inputs and 8 fixed outputs
- EEPROM storage of address / interrupt configuration for automatic power-on configuration
- 3 pin headers for a total of 100 I/O pins

### DESCRIPTION

The GPIO-MM Family consists of a set of digital I/O and counter / timer modules with various port and pin configurations. Each board uses identical hardware with a 200K gate Xilinx Spartan II RAM-based FPGA. The varying configurations are based on different FPGA code.

Base hardware supports up to 96 digital I/O pins with programmable direction based on 8255 cores and up to 10 16-bit counter / timers based on 9513 cores. Up to 100 I/O pins are provided by the module including four fixed digital outputs. 48 of the 100 I/O pins are buffered.

The three configurations currently offered include one configuration with 96 programmable digital I/Os and no counter / timers. The other two configurations provide 48 buffered digital I/O pins and 10 16-bit counter / timers. These two configurations differ in pin out definition to provide compatibility with two predecessor Diamond Systems products.

The board requires only a +5V input and operates from -40°C to +85°C.

### ORDER INFORMATION

Part No.	Description
GPIO- MM-XT	48 DIO, 10 Counter / Timers (GMM pinout)
GPIO-MM-12-XT	48 DIO, 10 Counter / Timers (OMM pinout)
GPIO-MM-21-XT	96 DIO

### SPECIFICATIONS

No. of I/O pins	100 (48 buffered)
Programmable Digital I/O	Up to 96 digital I/O with programmable direction based on 8255 cores
Counter / Timers	Up to 10 16-bit counter / timers based on 9513 cores
Base FPGA	Xilinx Spartan II, 200K gates, 40K RAM bits
Input Clock	40MHz
Output current, buffered I/O	Logic 0: 64mA max per line Logic 1: -15mA max per line
Output current, unbuffered I/O	±24mA max per line
Dimensions	3.55" x 3.775"
Power Supply	+5VDC ±10%
Operating Temp	-40°C to +85°C
Weight	2.2oz / 62.4 g
RoHS	Compliant
<b>GPIO-MM Specifications</b>	
Programmable Digital I/O	48 buffered (GMM pinout)
Fixed Digital I/O	8 Fixed Inputs and 8 Fixed Outputs
Counter / Timers	10 16-bit
Counter / Timer Modes	Counter, rate / square-wave generator, pulse-width modulator, programmable one-shot, hardware / software triggered strobe
<b>GPIO-21-MM Specifications</b>	
Programmable Digital I/O	96, programmable, 48 buffered, 48 unbuffered (OMM pinout)
Counter / Timers	None
<b>GPIO-12-MM Specifications</b>	
Programmable Digital I/O	48 buffered (OMM pinout)
Fixed Digital I/O	8 Fixed Inputs and 8 Fixed Outputs
Counter / Timers	10 16-bit
Counter / Timer Modes	Counter, rate / square-wave generator, pulse-width modulator, programmable one-shot, hardware / software triggered strobe