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Embedded Solutions

M99 - Carrier Board Test M-Module



- **Compliance testing of carrier boards**
- **All address and data bus sizes**
- **DMA, interrupts**

The M99 is based on the M-Module ANSI mezzanine standard. It can be used as an I/O extension in any type of bus system, i.e. CPCI, PXI, VME or on any type of stand-alone SBC. Appropriate M-Module carrier cards in 3U, 6U and other formats are available from MEN or other manufacturers.
The M99 can be used for functional testing of M-Module carrier boards for two- and three-row M-Modules according to the M-Module specification. Its functionality relies on the parallel interface and timer component 68230. An on-board SRAM permits testing of data transfer and DMA.
In addition interrupt handling, M-Module identification and trigger lines can be tested. 16 LEDs at the front of the module ease testing, with 8 LEDs being user-configurable.

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Technical Data

68230 Parallel Interface Timer
- 68000 bus compatible
- Port modes include:
  - Bit I/O
  - Unidirectional 8-bit and 16-bit
  - Bidirectional 8-bit and 16-bit
- Programmable handshaking options
- 24-bit timer
- Five separate interrupt vectors
- Separate port and timer interrupt service requests

Miscellaneous
- MA-Module
- 8 status LEDs
- 8 user-programmable LEDs
- DMA capability
- QSPI interface
- Up to 512KB SRAM
- Compatible with A4/A4N (QSPI, TPU lines, A16)
- ±12V failure detection

M-Module Characteristics
- A08, A24, D08, D16, D32, INTA, INTB, INTC, DMA16, DMA32, TRIGI, TRIGO, IDENT
- Burst access D16, D32

Electrical Specifications
- Supply voltage/power consumption:
  - +5V (4.85V..5.25V), 300mA typ.
  - ±12V, 1mA typ.
- MTBF: tbd.

Mechanical Specifications
- Dimensions: conforming to M-Module Standard
- Weight: 76g

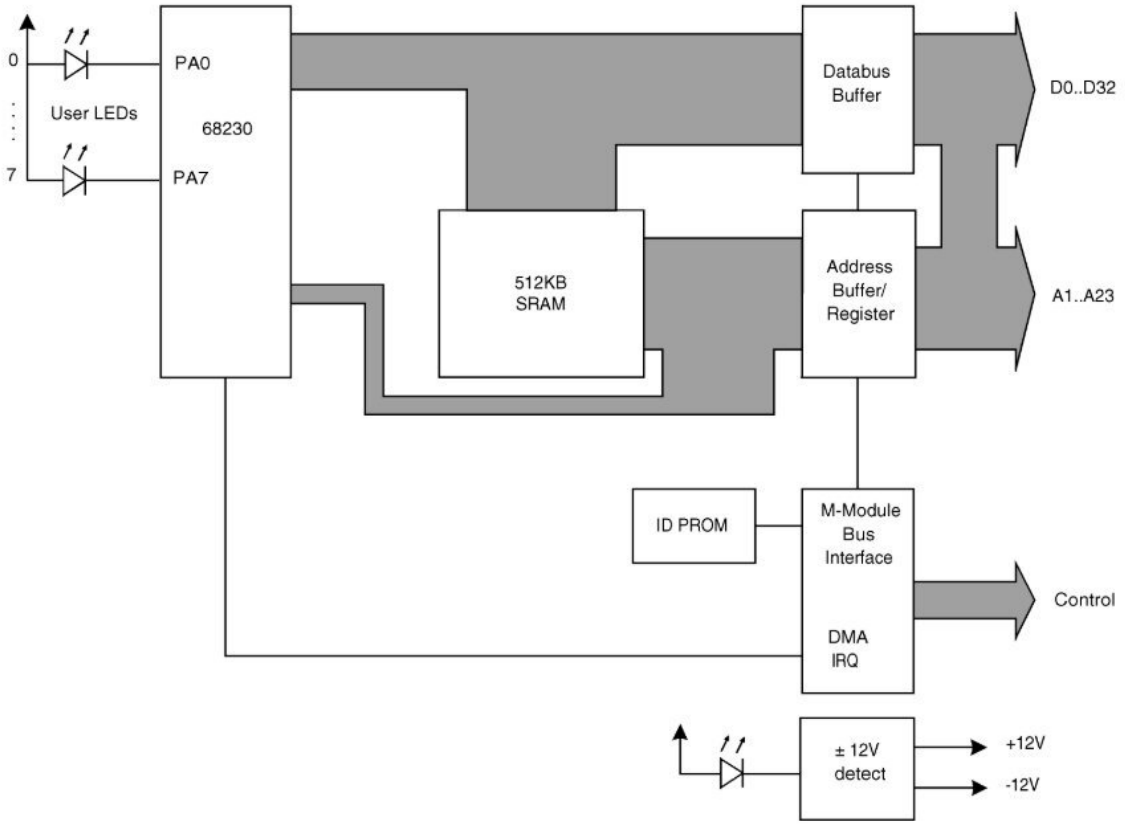
Environmental Specifications
- Temperature range (operation):
  - 0..+60°C
  - Industrial temperature range on request
  - Airflow: min. 10m³/h
- Temperature range (storage): -40..+85°C
- Relative humidity range (operation): max. 95% non-condensing
- Relative humidity range (storage): max. 95% non-condensing
- Altitude: -300m to + 3,000m
- Shock: 15g/0.33ms, 6g/6ms
- Vibration: 1g/5..2,000Hz

Safety
- PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers

EMC
- Tested according to EN 55022 / 1999-05 (radio disturbance) and EN 55024 / 1999-05 (immunity) with regard to CE conformity

Software Support
- MEN Driver Interface System (MDIS3 for OS-9)

Diagram


0
User LEDs
7
PA0
PA7
68230
512KB
SRAM
Databus
Buffer
D0..D32
Address
Buffer/
Register
A1..A23
ID PROM
M-Module
Bus
Interface
DMA
IRQ
Control
± 12V
detect
+12V
-12V

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Related Products

Standard Hardware

04M099-00	M99, M-Module (MA), test module for carrier boards

Software

13M099-06	MDIS4/2004 low-level driver sources for M99
13M099-70	MDIS4/2004 Windows® NT4/W2K driver for M99

To use MDIS4 low-level drivers, you also need one of the MDIS4 system packages available for Windows®, Linux, VxWorks®, QNX®, RTX or OS-9 (MDIS4 = MEN Driver Interface System).

Documentation

20M000-00	M-Module draft specification, Rev. 3.0
20M099-00	M99 user manual
21APPN001	Application Note: MDIS4 under LabWindows®/CVI

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the M99 online data sheet under www.men.de. --> Click here!

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