

# M4KH009

The M4KH009 is an intelligent, double-size, H009 interface module for the multimode, multiprotocol, Excalibur 4000 family of carrier boards. The M4KH009 provides a complete solution for developing and testing H009 interfaces and performing system simulation of the H009 bus, according to the standard H009 protocol. Each module of the M4KH009 contains 32K x 16 dual-port RAM for Data Blocks, control registers, and Look-up tables. In addition the module contains another 32K x 16 dual-port RAM for a Concurrent Monitor. All Data Blocks and control registers are memory mapped, and may be accessed in real-time.

Each of the independent, dual-redundant M4KH009 modules may be programmed to operate in one of three modes of operation: Central Control Complex (CCC) mode with Concurrent Peripheral Unit operation (1–16 PUs), Peripheral Unit mode (Multiple – up to 16 PUs) and Bus Monitor mode. In addition, the module can simultaneously operate as an independent Internal Concurrent Monitor in CCC, Multiple PU or CCC/Concurrent PU modes.

## General Features

- ◆ 32K x 16 dual-port RAM for CCC/PU/Bus Monitor modes
- ◆ 32K x 16 dual port RAM for Concurrent Monitor mode
- ◆ Operates as CCC, Multiple PU or CCC/Concurrent PU
- ◆ Programmable Interrupts
- ◆ Error injection: Word Count, Bit Count, Parity & Gap Time
- ◆ Error detection:
  - No clock on active bus, Manchester error, Parity error, Bit Count High, Bit Count Low, Word Count High, Word Count Low
- ◆ Variable amplitude transceivers for Clock and Data
- ◆ Programmable Time Tag resolution (PU & MON)



## CCC Mode

- ◆ Programmable Intermessage Gap
- ◆ Programmable Frame Time
- ◆ Programmable Retries
- ◆ Loop and Single Shot modes
- ◆ Adjustable skew between Clock and Data
- ◆ Can simulate CCC and up to 16 PUs simultaneously

## PU Mode

- ◆ Simulates up to 16 Peripheral Units
- ◆ 32 bit Time Tag
- ◆ 1024 entry message stack
- ◆ Adjustable skew between Clock and Data

## Monitor Mode

- ◆ Hold 1184 messages in a circular buffer
- ◆ Monitor can run concurrently with other modes
- ◆ Filter messages based on PU/CI/CF/TR fields
- ◆ Interrupts based on PU/CI/CF/TR fields
- ◆ 32 bit Time Tag
- ◆ Adjustable skew between Clock and Data

## Physical Characteristics

- ◆ Dimensions: 67mm x 93mm
- ◆ Weight: 60g

## Operation Environment

- ◆ Temperature: 0°–70°C standard temperature  
-40° to +85°C extended temperature (optional)
- ◆ Humidity: 5%–90% noncondensing
- ◆ MTBF: 330,350 hours at 25°C, G<sub>F</sub>

## Host Interface

- ◆ 4000 family of carrier boards
- ◆ Power: 5V @ 1.2 amp  
+/-12v@ 400 mA

## Software Support

- ◆ C drivers with source code
- ◆ *Exalt Plus*: Excalibur Analysis Laboratory Tools (optional)
- ◆ Additional software may be available on our website

## Ordering Information

- ◆ **M4KH009** Standard temperature module
- ◆ Additional Options:
  - E Extended temperature module
  - 001 With conformal coating

**Note:** When ordering this module with a 4000 family carrier board, use the module code specified in the *Module Ordering Information* on our website, or in the *User's Manual* of the carrier board.

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*These specifications are subject to change without notification*

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