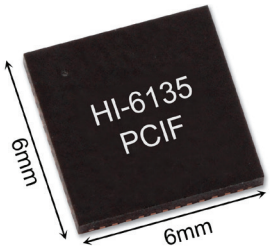
MAMBA™: 3.3V Smallest Footprint MIL-STD-1553/1760 BC/RT/MT Family

HI-6135 / HI-6136 / HI-6137 / HI-6138

Product Brief



Features

- Ultra-compact 6mm x 6mm 48-pin QFN package
- 4 product variants: RT, RT/MT, BC/RT and BC/RT/MT
- Concurrent multi-terminal operation
- Integrated dual transceivers
- Built-in self-test for protocol logic and RAM
- 8K x 17-bit words on-chip RAM with parity
- 40 MHz Serial Peripheral Host Interface (SPI)
- Fully programmable Bus Controller with 28 op code instruction set
- Independent time-tag counters for all terminals with 32-bit option for Bus Controller and 48-bit option for Monitor Terminal
- Simple Monitor Terminal (SMT) with 16-bit or 48-bit time tag
- 32-deep Interrupt buffer with hardware-assisted decoding
- MIL-STD-1760 Boot pin to initialize RT with Busy Bit set without host intervention
- Optional self-initialization using external EEPROM
- +/- 8kV ESD protection (HBM, all pins)
- Two temperature ranges: -40ºC to +85ºC, or -55ºC to +125ºC with optional burn-in
- DO-254 certifiable

Benefits

- Reliability and robustness of single-chip solution
- Less expensive than traditional multi-chip modules
- Short lead times – Always in stock!

For further information on these and other Holt products contact:

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ISO 9001:2008 Registered

General Description

The **MAMBA**™ family gives customers the World's smallest MIL-STD-1553/1760 solution with a selection of devices targeted at common application configurations for optimum cost savings. BC/RT/MT, BC/RT, RT/MT and RT combinations are offered. For a given device, any combination of the contained MIL STD-1553 functions can be enabled for concurrent operation. The enabled terminals communicate with the MIL-STD-1553 buses through a shared on-chip dual bus transceiver and external transformer. The user allocates 8K x 17-bit words of on-chip static RAM between devices to suit application requirements. Communication with the host is simplified via a 40 MHz 4-wire serial peripheral interface (SPI).

All RT devices are MIL-STD-1760 compliant, responding to valid messages with status word Busy Bit set within 150ms following power-on. The devices can also be configured for automatic self-initialization via a dedicated SPI port from an external serial EEPROM memory.

Bus Controller

The HI-6138 and HI-6137 are configurable to operate as a Bus Controller (BC). The BC is a programmable message-sequencing device for control in MIL-STD-1553B applications. Programmed using a set of 28 instruction op codes, the BC greatly reduces the host's processing workload. The BC can optionally use a 16- or a 32-bit time base, clocked from a choice of six internally generated clocks, or an external time base clock. Special BC op codes manage all 32-bit time base functions.

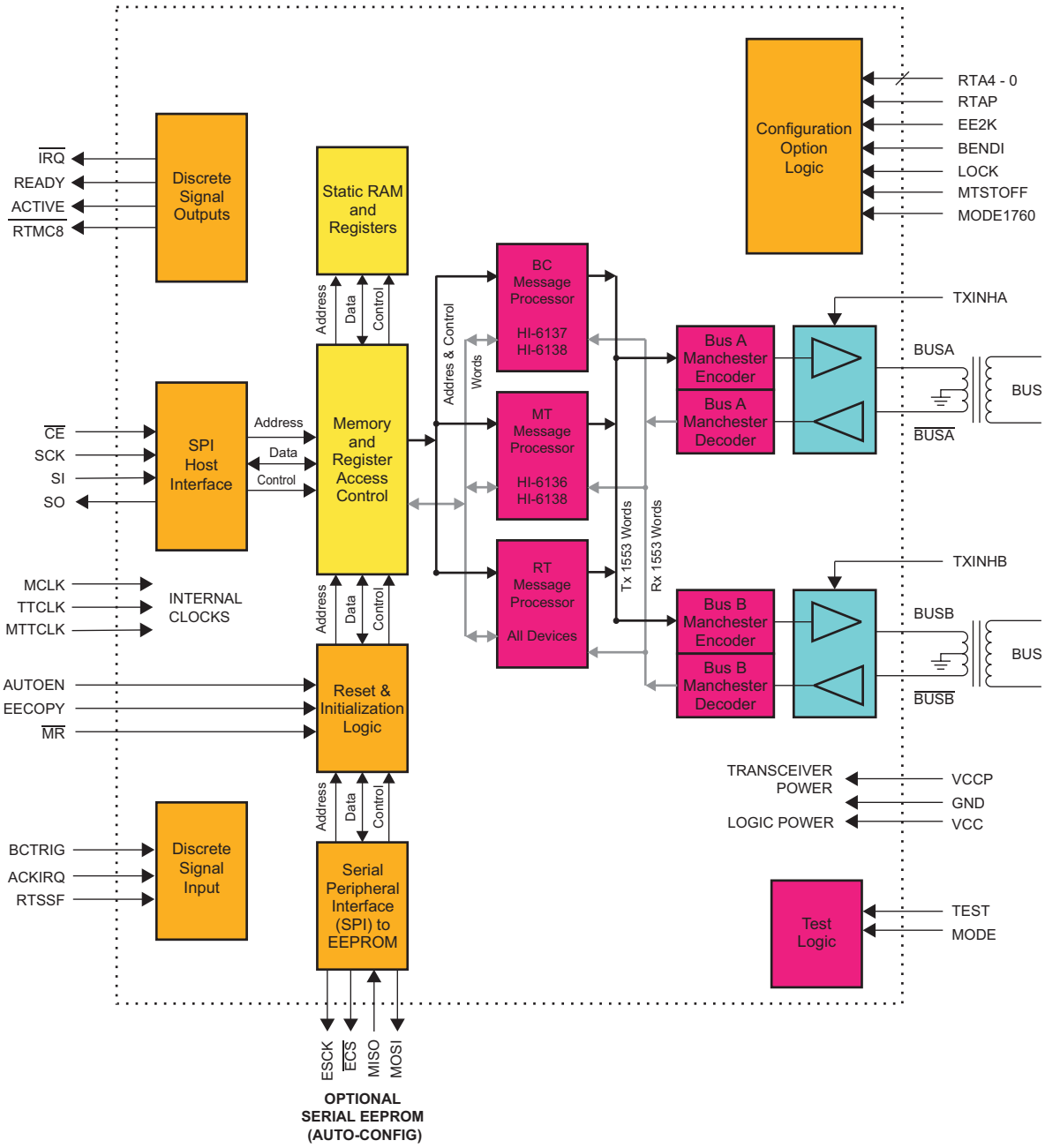
The programmable Bus Controller autonomously supports multi-frame message scheduling, message retry schemes, storage of message data, asynchronous message insertion and status /error reporting to the host processor.

Monitor Terminal

The HI-6136 and HI-6138 support Bus Monitor Terminal (MT) functionality to passively record MIL-STD-1553 bus activity. Message commands, terminal responses and message data are stored in internal RAM, with commands and data recorded separately. The Simple Monitor Terminal (SMT) can utilize 16- or 48-bit time tags with a range of clocking options.

Remote Terminal

All device variants are configurable to operate as a Remote Terminal. The RT is software compatible with Holt's popular HI-6130/31 Remote Terminal and has been fully validated. RAM buffer options include single, double and 2 circular buffer choices.



Part Number Variants	Device Description	Package Descriptions	Temperature Ratings
HI-6135	RT	48-pin 6mm x 6mm QFN or PQFP	-40ºC to +85ºC or -55ºC to +125ºC with optional burn-in
HI-6136	RT / MT		
HI-6137	BC / RT		
HI-6138	BC / RT / MT		

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