

### MB86600 Series with On-chip SCSI Processor

The Fujitsu MB86600 series of SCSI protocol controllers (SPC) offers an optimum balance of design flexibility and high performance through the incorporation of a SCSI processor unit that executes user defined program strings. The programs consist of predefined SCSI commands that can be linked via conditional commands; i.e., Compare, And, Move, and so forth, then loaded into the SPCs memory and executed from within the chip by simply providing a start address.

#### Features of MB86600 Series

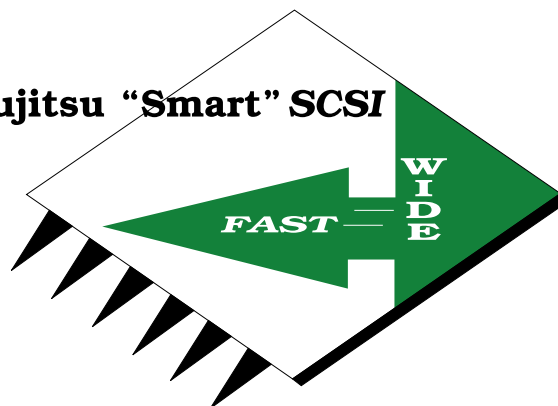
- Fast SCSI Support
- On-Chip SCSI Processor
- Command Queuing
- Target and Initiator Support
- Programmable Interrupt System
- Single-Ended Driver
- Separate Send and Receive Buffers for Command, Status, and Message
- Terabyte Transfer Counter
- Auto Selection/ Reselection Mode
- Diagnostic Mode

Using this high level feature it is possible to execute an entire SCSI event from Bus Free to Command Complete without generating an interrupt. The SCSI processor will sequence through the various SCSI phases independent of the external MPU thus reducing system overhead to a minimum.

Moreover, for those users requiring a higher level of control, the MB86600 offers a discrete command mode. This is similar to second generation SPCs that provided the designer with a combination of individual commands and link commands. For example: *Reselect and N-byte-MSG and Link Terminate* is a single link command, and each of the three commands in the link are available as discrete commands.

For debugging code, the MB86600 allows control of individual signals on the SCSI bus. As this implies, the designer can wiggle the SCSI signals on the bus. A thorough diagnostic mode is also available for debugging and as a mechanism for testing ICs at incoming inspection.

### Fujitsu "Smart" SCSI



### Improved Error Reporting System

The MB86600 products feature a detailed error reporting function that facilitates precise error reporting information. The MB86605, for instance, provides 256 predefined interrupt codes to cover transfer errors, phase errors, reporting errors, selection/reselection errors and auto selection/ reselection errors. In each of these categories there are at least seven differential error conditions the SPC will acknowledge. (Naturally, those interrupts that are non-critical can be disabled.)

Each interrupt condition is reported in the Interrupt Status register while the SPC condition is reported in the Command Step register. Together, the two registers provide a precise description and the exact operating condition of the SPC when the error occurred.

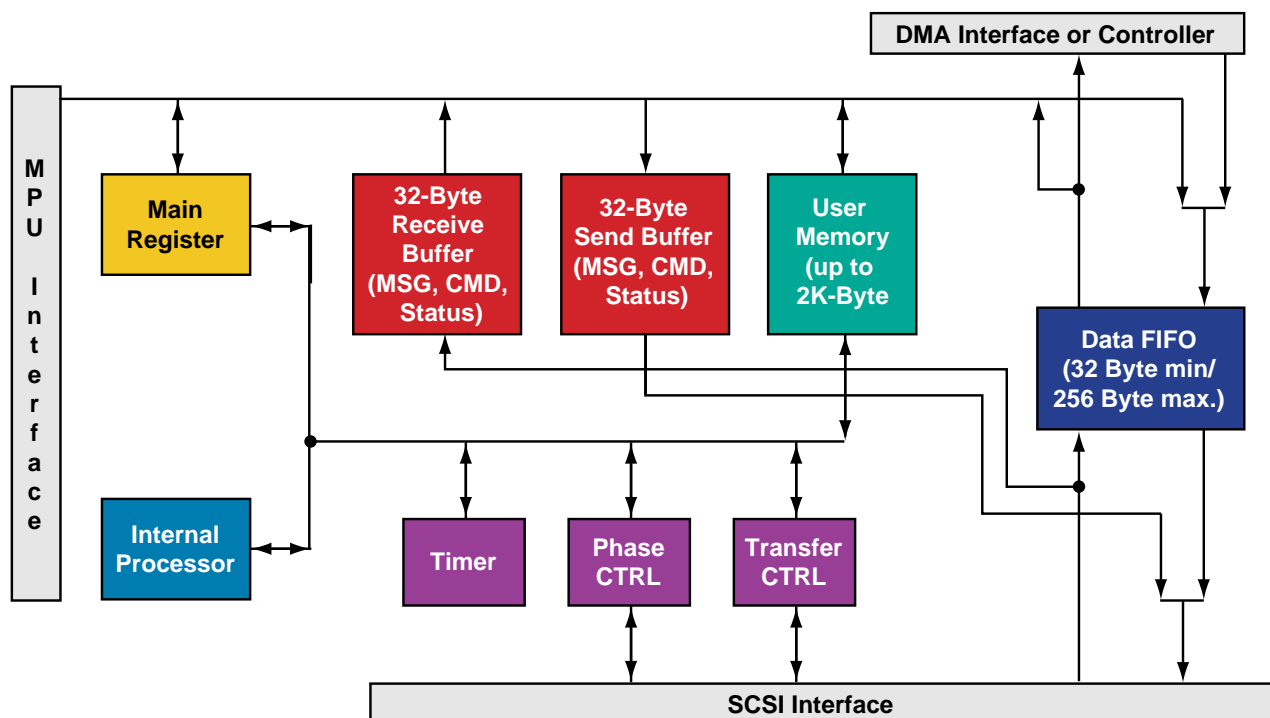
### Multiple ID Response

For disk array applications the MB86605 and soon to be introduced SCSI 3 fast-20 parts feature the capability to respond to 16 different IDs thereby increasing the number of LUNs by a factor of 16.

### Queuing on Command

Command Queuing is supported by all MB86600 products by storing the CDBs in a predefined location in the on-chip RAM. The location of the CDB is reported to the external MPU for processing in or out of order. The number of CDBs stored is limited only by the available RAM, the size of which varies depending on the MB86600 device.

In addition to the User Program/Command Queue RAM the MB86600 feature large data FIFOs of at least 32 positions (byte-wide or word-wide depending on SCSI bus width) and separate 32-byte send and receive buffers for Message, Status, and Command bytes.



MB86600 Core Block Diagram

### Device Specific Features

Part Number	SCSI Bus Width	User RAM	Data FIFO	Package (pin/type)	Salient Features
MB86603	16-bit	512 Byte	64-Byte	176/ QFP	Fast, Wide SCSI General purpose bus interface.
MB86604	8-bit	256 Byte	32-Byte	100/ QFP	Fast, Wide SCSI General purpose bus interface.
MB86605	16-bit	2K Byte	64-Byte	144/ SQFP	32-bit PCI interface or general purpose interface, SCAM, scatter/gather DMA ctr.
MB8660X	16-bit	2K Byte	512-Byte	144/ SQFP	Same as MB86605 but will support Fast-20 SCSI
MB8660Y	16-bit	2K Byte	512-Byte	144/ SQFP	Same as MB8660X except will support Fast-20 and external BIOS ROM.

FUJITSU MICROELECTRONICS, INC.

3545 North First Street

San Jose, CA 95134

1 (800) 642-7616