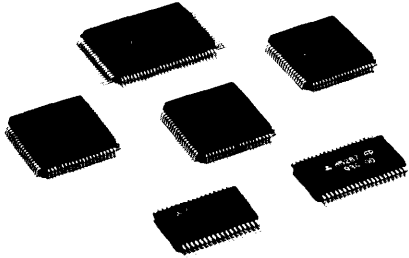


# MORE PRODUCT LINES OF ICs FOR ODD CONTRIBUTING MINIATURIZATION, LOW POWER DISSIPATION AND HIGH SPEED

**M52870FP M52871FP M52873FP  
M52874FP M52876FP M64400FP  
M35701E2AXXFP**



## DESCRIPTION

Optical disks are gaining popularity as compact large-storage media with the advantage of portability and changeability by means of high-density recording.

A 130mm add-on and rewritable optical disk drive (ODD) is now available and 90mm rewritable disk drives have been announced by some manufacturers.

A 90mm ODD is mainly used as an external storage unit, and demand is high for small, low-dissipation and high-speed disk drives.

Mitsubishi Electric has developed ICs for ODD based on the technology of our pioneering ODD study and development team.

## DESCRIPTION OF PRODUCT

### ■M52870FP

This head amplifier for optical pickup has a current-voltage conversion circuit and addition/subtraction differential amplifier circuit for data (RF) signal.

A built-in feedback resistor handles current-voltage conversion of focusing

Table 1 List of ICs for ODD

Type	Function	Outline	Characteristics
M52870FP★	Head Amplifier	36SSOP	Low-Noise Wide-Band I-V Converter for Laser Power Monitor, Focus Sensor and Tracking Sensor, Built-in Stabilizer Poser Supply for Reference Voltage, Gain Adjustable
M52871FP★	Playback Signal Correction	42SSOP	High-speed Switching Attenuator for Input Level Adjustment, Add-On Signal, Sector Mark Signal, Built-in Dropout Signal Detector
M52873FP★★	Focusing Servo, Tracking Servo Controller	80QFP	8-Bit Sequential Comparison A-D Converter, Built-in 2-Channel 8-Bit D-A Converter, Power Saving Function
M52874FP★★	Radial Servo Controller	80QFP	8-Bit D-A Converter for Target Speed and Detection Speed, Built-in Observer Circuit for Speed Detection, Power Saving Function
M52876FP★★	Automatic Laser Power Controller	80QFP	8-Bit D-A Converter for Record Power Setting, Built-in 8-Bit A-D Converter, Power Saving Function
M52868L	Linear Motor Pre-driver	20ZIP	Vcc = +12V, Power Reset Function
M52863L	Actuator Driver	12SSIP Heatsink	Vcc = +12V, I <sub>o peak</sub> = 0.6A, Low Offset Power Reset Function
M35701E2AXXFP★★	SCSI Controller	128P6	Sync Transfer 5.3MB/sec, Async Transfer 3MB/sec, SCSI Control Basic Software Support
M64400FP★★	Error Detection, Error Correction	100QFP	Correction at the world's highest speed is possible. Delete Correction Function. Complies with the 130mmISO (CCS) and the 90mmANSI Draft.

★New product ★★Under development

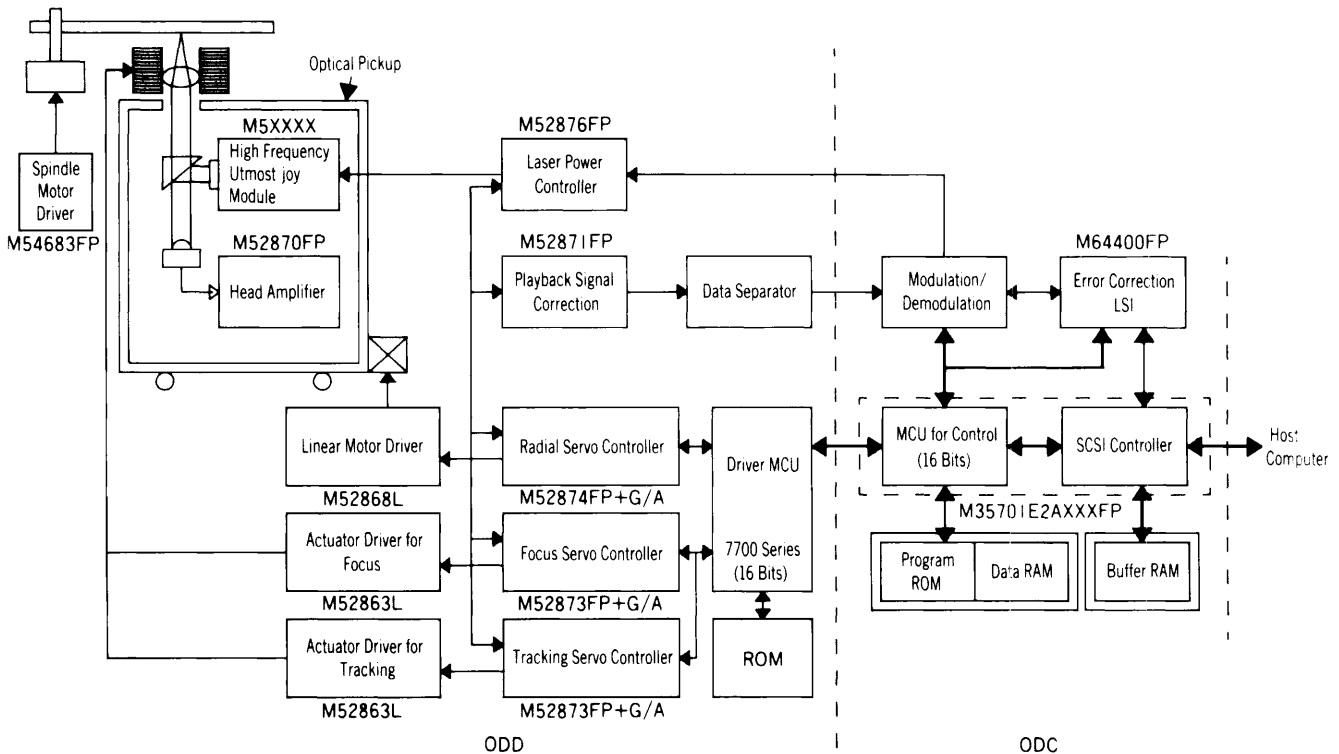


Fig.1 Block Diagram of a Typical System

servo and tracking servo signals, and two kinds of setting are possible with the external signal. The RF signal is obtained by addition/subtraction of focusing servo and tracking servo signals and provides a differential voltage output.

A built-in current-voltage conversion circuit for power monitor sensor signal is provided.

■M52871FP

This is used for correction of the RF playback signal for head amplifier and for sector mark and dropout detection.

The input section consists of the first-stage amplifier, attenuator and AGC amplifier, and supplies the RF signal to the sector mark, data and dropout detection circuits. It has a built-in differential amplifier for data detection and voltage comparator for level slicing.

■M52873FP

This is used for beam focusing control or for tracking control.

The servo control signal from the head amplifier is entered into the subtraction circuit and performs division and A-D conversion for error signal normalization using an A-D converter. It has built-in sensor offset adjustment, focusing servo intake, D-A converter for jumping pulse, as well as excess actuator current monitor circuit, sample and hold circuit for dropout and jumping and power save function for saving power.

■M52874FP

This is used for track traverse speed control and tracking/radial servo connection tracking control of the optical head.

The track traverse speed is controlled by detecting the number of traversed tracks and the speed by the tracking and data signals from the optical head, and by moving the optical head to the destination track by the speed profile which is read from the ROM.

Instant high-speed and direct access to the destination track is possible by switching to tracking/radial servo connection tracking control when the head accesses the destination track.

■M52876FP

This performs laser power control during playback. The device consists of test pulse generator circuit to compensate for variations in laser diode characteristics, A-D converter for recording power detection, recording power indicator circuit, pulse driver for recording, playback power reference value generator circuit, power driver for playback and laser diode light detection comparator as well as built-in power saving function.

■M64400FP

The device performs generation of check bytes, error detection and error correction in compliance with the 130mm ISO standard optical disk (OCS) and 90mm ANSI draft optical disk at the world's fastest speed. It also

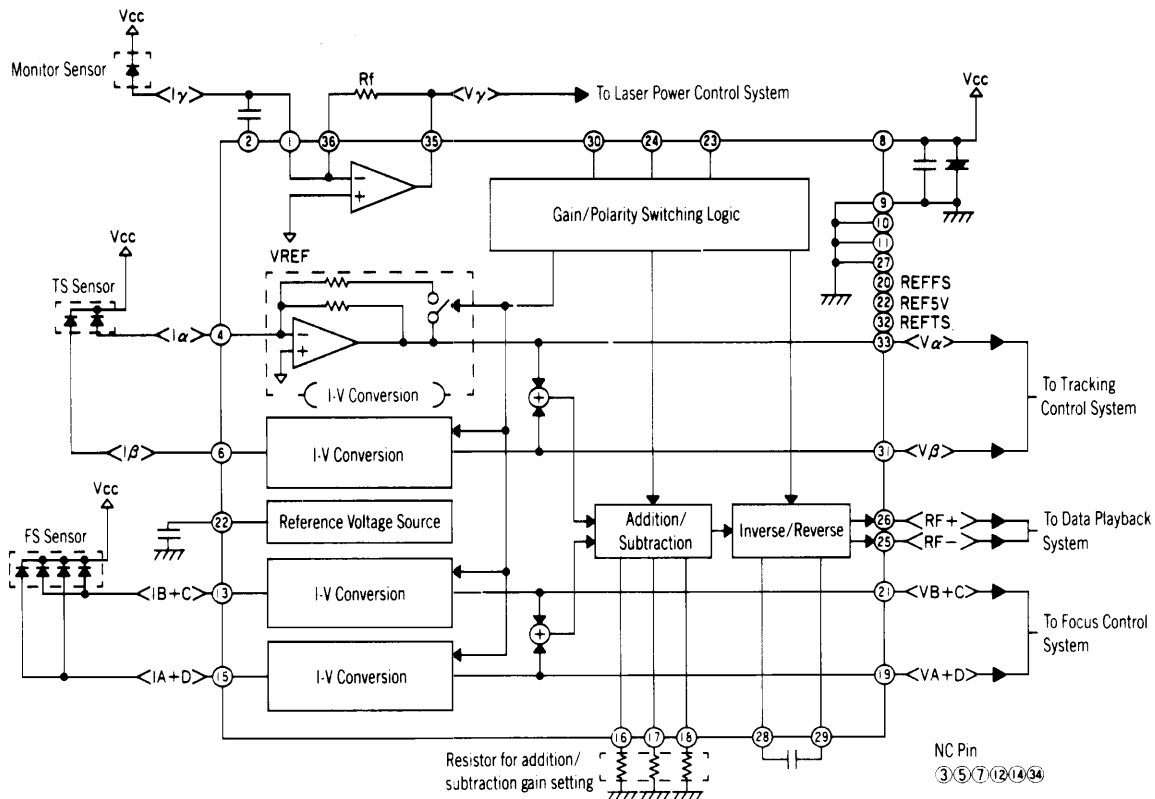


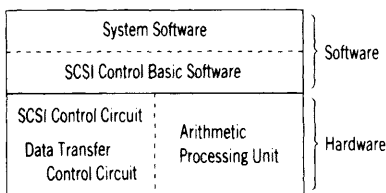
Fig.2 Block Diagram of M52870FP

performs real-time burst error correction at a speed double that of conventional devices and performs real-time recheck (CRC) after error correction. (Disk rotation is possible at up to 4800 rpm.)

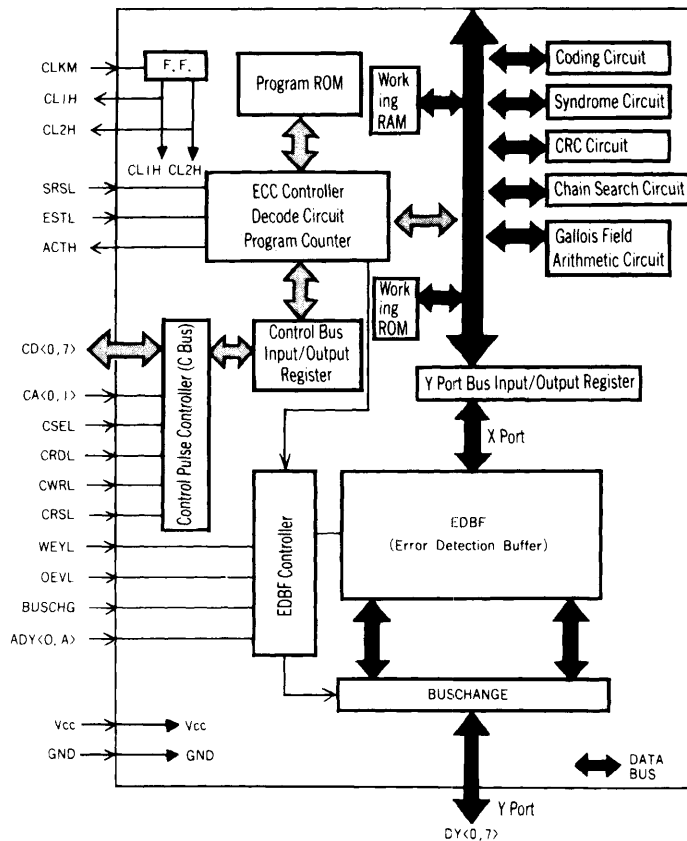
**M35701E2AXXFP**

This is an MCU with built-in SCSI control circuit and data transfer control circuit as a part of Mitsubishi Electric's 16-bit microcomputer MELPS 7700 series, allowing flexible system control for hardware and software. It supports the basic software for SCSI control allowing easy combination of system software according to the equipment to be developed. The device executes high speed sync transfer at 5.3MB/sec and async transfer at 3MB/sec. This MCU (with built-in EPROM 16K bytes and RAM 512 bytes memory) allows external system control and contributes to ODD system miniaturization.

Mitsubishi Electric will meet customer needs by promoting product development with the latest servo technology and signal processing technology to achieve high speed transfer and miniaturization of drives, thus providing a variety of ICs which are key parts in ODD systems.



**Fig. 3 Basic Structure of Hardware and Software of M35701E2AXXFP**



**Fig. 4 System Block Diagram of M64400FP**