COMPATIBLE CHIP SET FOR IBM PS/2® MODEL 30

FEATURES

OTI-031 SYSTEM CONTROLLER

- Controls 8086, 80C86 & V30 CPU speeds at 8 MHz or 10 MHz
- Generates programmable fast and normal timing for memory and I/O
- Supports 256K or 1Mbit DRAMS
- Supports up to 8Mbytes of additional memory (EMS 4.0)
- Arbitrates the system bus among the CPU, DMA, math coprocessor, and DRAM memory refresh cycle
- Provides four channels of DMA as well as burst mode

OTI-032 I/O CONTROLLER

- Controls Model 30-compatible system keyboard and mouse
- Integrates the following functions on a single device:
  - 8253-compatible timer/counter
  - Dual 8250-compatible serial communications controller
  - Bidirectional Parallel port controller
  - 8259-compatible interrupt controller
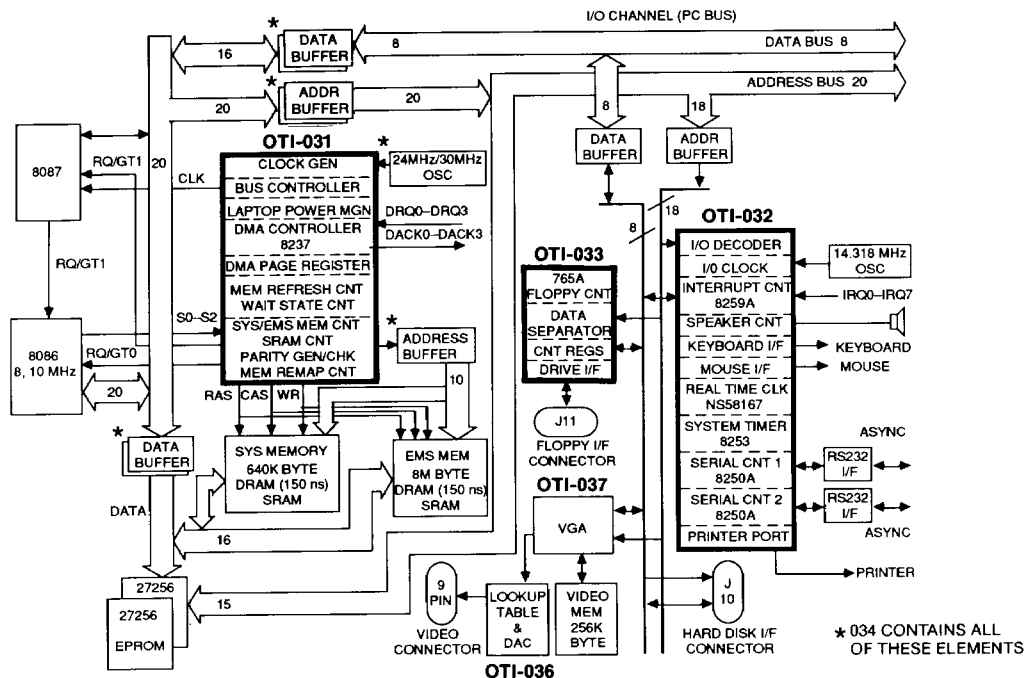 - 58167-compatible real-time clock

OTI-033 FLOPPY DISK CONTROLLER/DATA SEPARATOR

- Provides a µPD765A-compatible floppy disk controller
- Contains a precision analog data separator
- Integrates an integral phase comparator, and voltage controlled oscillator (VCO)
- Provides the system with three data rates:
  - 250K bits-per-second
  - 300K bits-per-second
  - 500K bits-per-second

OTI-034 ADDRESS/DATA BUFFER DRIVER

- High capacitive driver (150 pF load) used for memory address and data buffers or anything that requires a high current drive and speed
- Dual oscillators provide stable frequencies up to 32 MHz
- Optional memory error detection and correction, based on Hamming codes

PS/2 MODEL 30-COMPATIBLE SYSTEM BLOCK DIAGRAM

OTI-031/OTI-032
OTI-033/OTI-034

DESCRIPTION

The OTI PS/2 Model 30-Compatible Chip Set, available from Oak Technology, Inc., integrates logic and functions on PS/2 Model 30-compatible systems, reducing the motherboard device count by approximately one-half, when memories are excluded. A four-chip set, it consists of the CMOS OTI-031 System Controller; the CMOS OTI-032 Input/Output Controller; the OTI-033 Floppy Disk Controller and Data Separator; and the OTI-034 Buffer Driver. While offering complete compatibility with PS/2 Model 30 systems, the OTI Chip Set improves performance by allowing 10-MHz operation with no wait states by using 150ns DRAMS. It also supports an additional 8M-bytes of memory using EMS (Expanded Memory Specification) 4.0, and controls system speed as necessary for optimum performance.

The CMOS OTI-031 is the System Controller device in the Chip Set. Available in an industry-standard 100-pin flat pack, it provides a PS/2 Model 30-compatible system with the dual speed control (8 MHz or 10 MHz) necessary to operate the system at peak performance. The device also controls memory, I/O, parity, address paths and data paths, as well as handling four channels of direct memory access.

The CMOS OTI-032 is the Input/Output Controller, and provides PS/2 Model 30-compatible systems with control of both the keyboard and the pointing device ("mouse"); control of two serial communication channels; a real-time clock; and control of both the disk storage and display functions. In addition, it provides the chip select logic for the functions it controls. The device comes in an industry-standard 100-pin flat pack.

A third device, the OTI-033, is the Floppy Disk Controller and Data Separator. It provides Model 30-compatible systems with a μPD 765-A compatible floppy disk controller function, a precision analog data separator, an internal phase comparator, the required filters, as well as a voltage controlled oscillator (VCO). An industry-standard 48-pin plastic DIP (also available in PLCC package), the device gives the system three disk data rates: 250K, 300K, and 500K bits-per-second.

The last member of the Chip Set, the OTI-034 Buffer Driver, is a custom integrated circuit designed to be a data and address path buffer driver for IBM PC®, XT®, and PS/2 compatible systems. The OTI-034 replaces 8 of 20 pin TTL ICs and provides 2 on-chip oscillators up to 32 MHz, resulting in a small device count and area used on a system board, and a high degree of reliability. It is packaged in a 128-pin flat package.
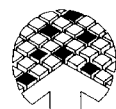
The OTI-036 Color Palette and OTI-037 VGA Video Graphics Controller can be used in PS/2 Model 30-compatible systems. It provides high resolution graphics of 800 × 600 elements with 16 colors. Graphic capabilities of this resolution are usually found only on more expensive systems.

ORDERING INFORMATION

PART NUMBER	PACKAGE
OTI-031	Plastic Flat Pack
OTI-032	Plastic Flat Pack
OTI-033	Plastic DIP Plastic Leaded Chip Carrier (PLCC)
OTI-034	Plastic Flat Pack

NOTES:
Operating temperature range is 0° to +70°C
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