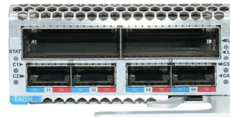


ST506 Hard Drive Interface



AI Overview

The ST-506 interface is an early hard disk drive interface introduced in 1980, connecting drives to controllers via separate control and data cables using MFM encoding.

Overview The ST-506 interface was introduced by Seagate (originally Shugart Technology) in 1980 with the first 5.25-inch hard disk drive, the ST-506, which stored up to 5 MB after formatting. It became a de facto standard for early personal computers, including the IBM PC/XT, and was widely adopted by other manufacturers. Its successor, the ST-412, increased capacity to 10 MB and improved seek performance while maintaining compatibility with the ST-506 interface.

Physical Connection The ST-506 interface uses two signal cables and a power cable:

- Control cable:** 34-pin ribbon cable, similar to the Shugart floppy disk interface, capable of supporting up to four drives. It carries signals for head selection, step pulses, and drive selection.
- Data cable:** 20-pin ribbon cable, carrying separate unidirectional RS-422 compatible differential signal pairs for Read and Write operations.
- Power cable:** Standard 4-pin connector providing 5V and 12V to the drive. Each drive requires its own dedicated data cable to the controller, while multiple drives can share a control cable.

Data Encoding and Transfer The interface transmits analog signals from the drive heads, which the controller converts into digital data. Early ST-506 drives used MFM (Modified Frequency Modulation) encoding at a data rate of 5 Mbit/s, while later drives could use RLL (Run Length Limited) encoding to increase capacity by 50%. The controller is responsible for timing, step pulse generation, and flux reversal interpretation to read and write data.

Controller Interaction ST-506 drives are considered "dumb" because the controller handles all track and sector management. The controller translates host requests into head movement commands, including step pulses and direction signals. Step pulses must not exceed one pulse per 3 milliseconds for ST-506 drives, while ST-412 drives introduced buffer...

Article Content

1980: Seagate 5.25-inch HDD becomes PC standard

This introduction established ST506 interface and form factor as industry standards. It also established Seagate as an "instant leader in the industry." Tandon shipped a competing 5.25-inch model that

Seagate ST 506/412 OEM Manual

The ST-506/412 electrical interface is similar to Shugart Associates' SA 1000 family of 8 inch fixed disc drives. ST -506/412 size and mounting are identical to the industry standard minifloppy disc drives,

DS_Seagate ST506

But when Iftikar had completed the mechanical design in January, 1980, and ordered hard tooled components three months ahead of schedule, a new business plan was generated in February, 1980

Working with ST-506 Interface MFM Hard Drives

Working with ST-506 Interface MFM Hard Drives If you have an IBM PC, XT or compatible of similar vintage, historically accurate options for mass storage can be a bit tricky to work with. No XT-IDE,

ST-506/ST-412 explained

ST-506/ST-412 explained The ST-506 and ST-412 (sometimes written ST506 and ST412) were early hard disk drive s introduced by Seagate in 1980 and 1981 respectively, that later became

ST-506/ST-412 explained

In the ST-506 interface, the drive connects to a controller card with two ribbon cables carrying signals, while a third cable provides power. The two signal cables are the wide 34-pin control cable and the

SEAGATE ST506 MICROWINCHESTER

The ST506 electrical interface is similar to the Shugart Associates SA1000 family of 8 inch fixed disc drives. The ST506 size and mounting is identical to the industry standard minifloppy disc drives and

Hard Disk Drives/ Seagate // retrocmp / retro computing

Shugart was responsible for the genesis of the two hard drive interfaces that were to dominate the PC world for decades, SCSI and ST-506/412. In 1980 Shugart produced the world's

Whence IDENTIFY DRIVE? | OS/2 Museum

ESDI drives were an outgrowth of ST506 drives commonly used for higher-end hard disks. ESDI was faster—while ST506 was limited to 5 Mbps,

ST506/412 (MFM & RLL)

The ST506/412 interface is the de facto standard hard-drive interface introduced by Seagate in 1980 with the ST506 (5 MB, 5.25-inch) and extended with the ST412 (10 MB, 1981),

FAQ Atari 400 800 XL XE: How can I use an ST506 interface hard

5MB, 10MB, or 20MB hard disk packages with SWP host adapter (40 pin header connector to controller), WD1002-HDO MFM controller (ST506 interface: 34 pin header drive control + 20 pin

Replacing ST-506 MFM Drives with IDE or Flash

> recently re-united Cromemco systems from faulty ST506 disk to > something preferably solid state. > > marcus. The poster actually asks two questions. On the one hand, the

Hard Disk Drives/ Seagate // retrocmp / retro computing

MFM & RLL Most hard drives of the pre-IDE period used MFM (Modified Frequency Modulation) encoding. Floppy drives still do. MFM was not the only twin- cable hard drive interface

SEAGATE ST506 PRODUCT MANUAL Pdf Download | ManualsLib

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ST506/412 (MFM & RLL)

ST506/412 interface pinout: 34-pin control cable and 20-pin data cable used by early 5.25-inch MFM and RLL hard drives from 1980 onwards.

Hard disk drive interfaces

The ST506 and ESDI interfaces had a lot of the signal processing electronics on the Interface card but with the ever increasing scale of circuit integration, it became possible to put this on the Hard Disk

ST-506 | Article about ST-506 by The Free Dictionary

The first full-height 5.25 inch hard disk drive for personal computers, introduced in 1980 by Shugart Technology (now Seagate Technology). The ST-506 stored up to 5 megabytes after formatting using

Definition of ST506 | PCMag

For many years, the ST506 interface was used by other disk drive manufacturers. See ST412 and hard disk interfaces. The ST506 Seagate's ST506 was the first

The smallest and cheapest ST-506/RLL/MFM hard drive emulator.

Pico506 is a simple, yet universal emulator of old RLL/MFM hard drives using the ST-506 signaling and control interface. It is based on a Raspberry Pi Pico (RP2040 chip), which makes it

ST506 disk interface

The ST506 disk interface (other common names: ST412, ST506/ST412, or often the misleading MFM disk) was introduced in 1980 by Seagate with the 5MB hard disk of the same name.

ST-506/ST-412

In the ST-506 interface, the drive connects to a controller card with two ribbon cables carrying signals, while a third cable provides power. The two signal cables are the wide 34-pin control cable and the

ST-506 from FOLDOC

ST-506 <storage> The first full-height 5.25 inch hard disk drive for personal computers, introduced in 1980 by Shugart Technology (now Seagate Technology). The ST-506 stored up to 5

Crude Anatomy of an "MFM" Hard Drive

What is commonly referred to as an "MFM" drive, is really a drive that uses the ST506/ST412 interface. Originally, only 4 heads were supported, because the third head-select bit (bit 2) was not used; it was

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For more information, pricing, or custom solutions, please contact us:

Website: <https://www.sabineamsee.co.za>

Email: info@sabineamsee.co.za

Phone: +27 82 415 6793

Address: Unit 7, Innovation Park, 34 Electron Road, Kempton Park, 1620,
South Africa

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