Solution Provider

KYODO INTERNATIONAL INC.

Mirroring functional Dual HDD Back-Up System - Prevention of data loss due to tool crash - (SCSI/IDE⇒SATA conversion function equips)

【Contact】

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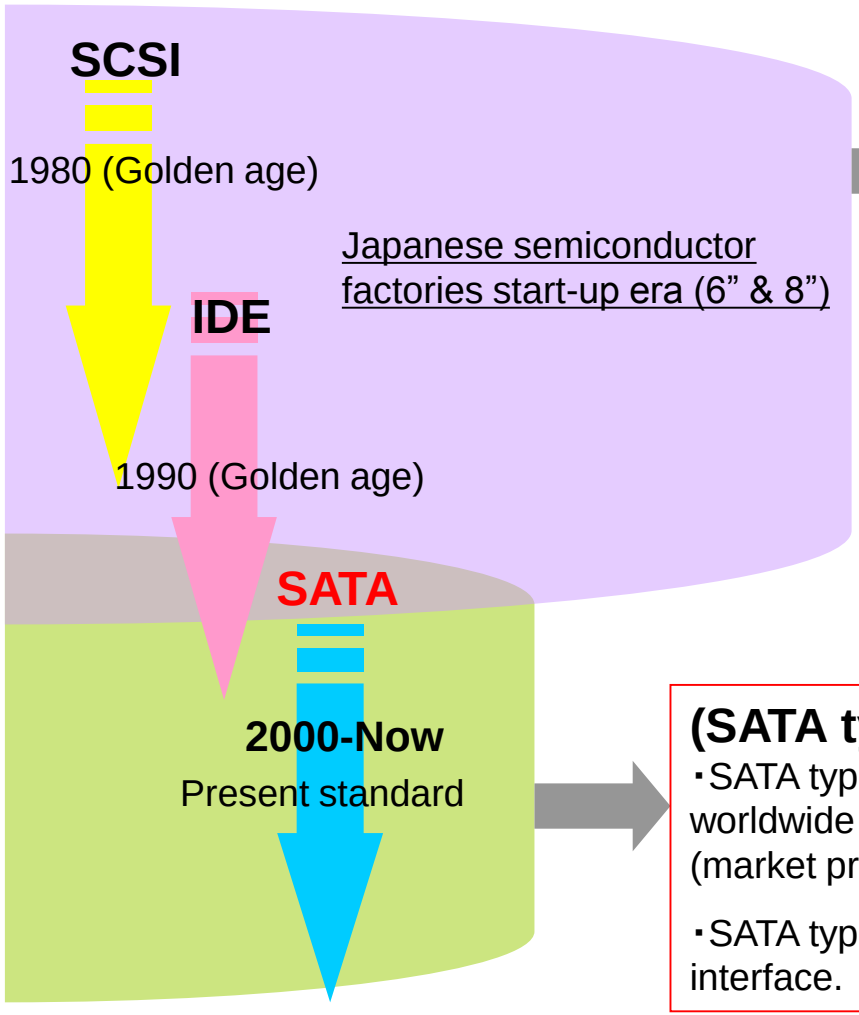
History of HDD standards (Reference)

Transition of HDD data transfer standards



(SCSI type)
Almost impossible to procure in the market.

(IDE type)
・IDE type HDD available in the market apt to be larger volume and incompatible to old PC.

・IDE type HDD is totally incompatible to PC with SCSI interface.

"Dual HDD" is an alternative to above legacy HDDs

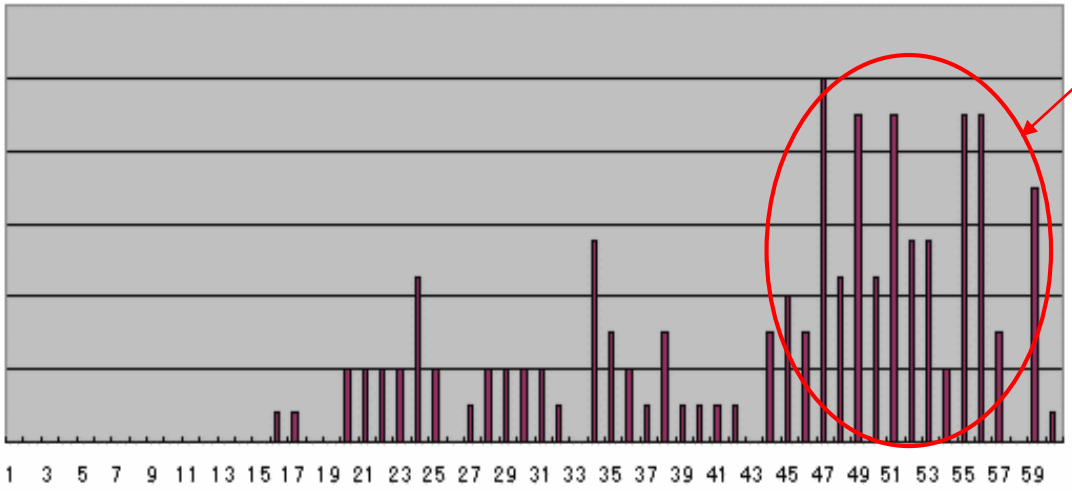
(SATA type)
・SATA type HDD is standard HDD broadly used contemporarily in worldwide and will have been procurable in low price for long period (market price is approximately JPN 10,000).

・SATA type HDD is not to mention incompatible to PC with SCSI interface.

About HDD crash

Decrepit equipment used for 10+ years has high probability of crash due to HDD failure.

Number of file server disk crash (Researched by maker)



Monthly usage

Incidence of HDD crash dramatically increases after 4 years usage (reference).

Above data shows that HDD is a kind of consumable part. Unless user replaces HDD regularly, probability of sudden machine crash increases proportionately.

Typical HDD trouble & example of improvement

Number of HDD trouble during past 3 years (actual figure at the customer)

	HDD caused troubles / entire troubles	Rate
Before 1 year	39 / 1170	3.33%
Before 2 years	19 /1141	1.66%
Before 3 years	15 /1072	1.40%

Increase

※HDD trouble shooting cost (by equipment maker)

◆ Equipment A (CVD): example

SCSI type HDD price : JPN 350,000.-
OS installation & labor cost : JPN 500,000.-
Total amount : JPN 850,000.-

Customer has to pay the price for above total fee whenever HDD trouble occurs.

◆ Equipment B (IMP): example

New PC price : JPN 8,000,000.-
Technical fee : JPN 2,000,000.-
Total amount : JPN 10,000,000.-

HDD unit itself is irreparable so customer need to invest to new system.

Improvement

Improvement

JPN 425,000 reduction is achievable !

◎ By installation of Dual HDD

HDD price (1pc) : JPN 15,000.-
Dual HDD (1st unit) : JPN410,000.-
Total amount : JPN 425,000.-

JPN 410,000 is initial cost of Dual HDD system.

Next time, only JPN 15,000 is required during HDD replacement.

Customer can replace HDD very easily while equipment remains running.

Avoidance of high expense is viable !

Production loss in case of HDD crash (Indirect cost)

When HDD crashes, down-time due to cessation of equipment leads to huge loss of money in addition to sudden repair cost of HDD. This indirect cost tends to be overlooked but it never be a small cost.

Inquiry to Maker
↓
Receive HDD
↓
System installation
↓
Data installation
↓
Chamber maintenance
↓
Test run

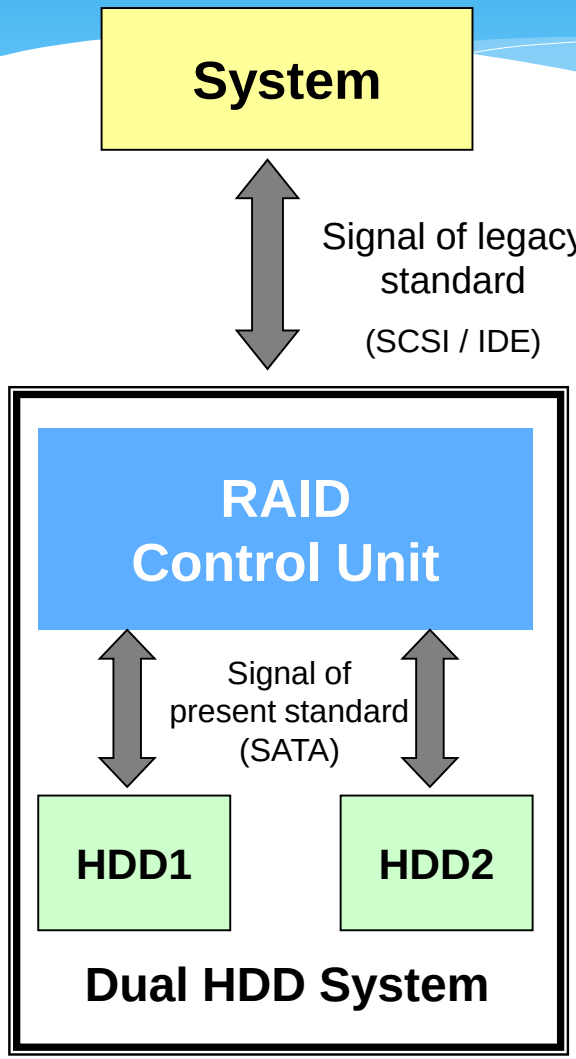
[Below redundant cost occurs in case of HDD crash]

1. Scrap wafers
2. Tremendous system reconfiguration effort
3. Equipment restarting
4. Production down-time

In-direct loss : Calculated as 5 days of average equipment cessation and JPN 10,000 labor cost per 1 hour
= 40H×10,000/H=¥400,000

There is bigger possibility that system cessation continues several days due to HDD crash. In the event that such trouble occurs at Only-One equipment or unreplaceable tool, damage of production will be more severe.

Proposal of Dual HDD



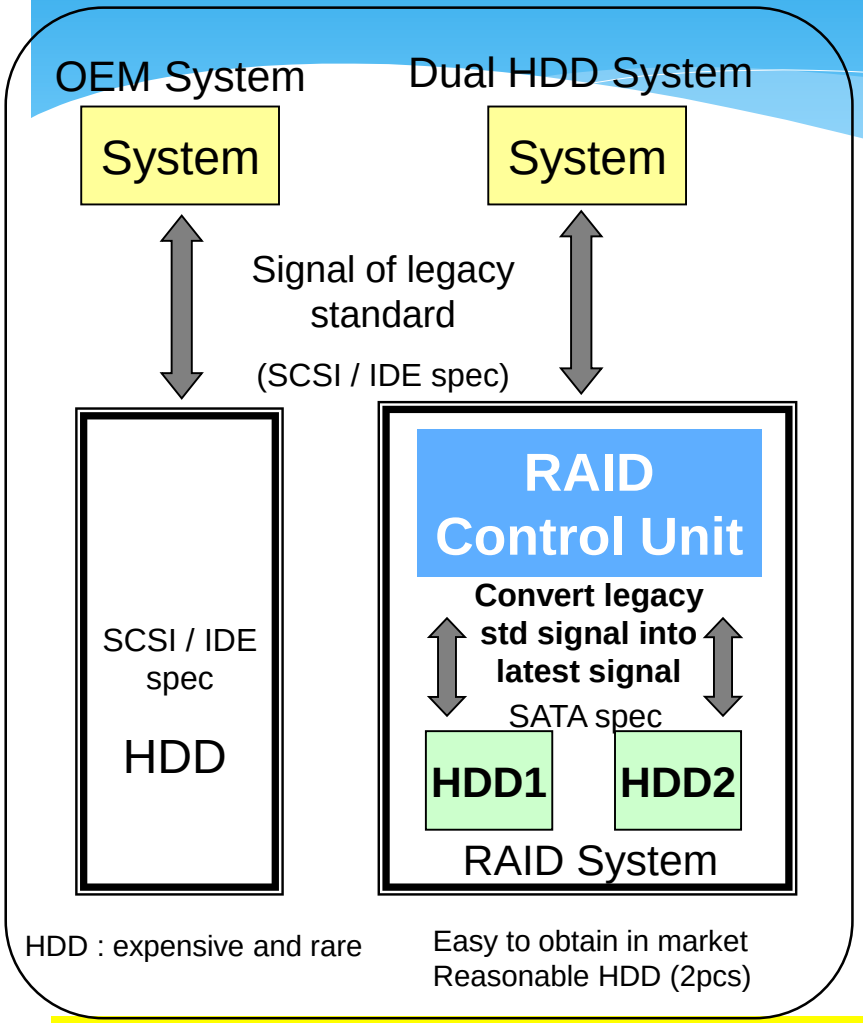
In case old type HDD, equipment stops when HDD crashes since it only equips single HDD. It results on huge production loss.

In case of Dual HDD, mounted two HDDs realized halt torelant operation.

HDD can be replaced unilaterally.

(connect/disconnect) while HDD is running.

Function of Dual HDD System



[Feature]

■Record data to two HDDs simultaneously
⇒RAID1(Mirroring) function

■Even though one HDD crashes, the other HDD activates production equipment so there is no concern about sudden HDD failure.

■In case of HDD crash

•Crashed HDD is replaceable while production is running.
•After replacement of one HDD, Data is automatically recorded while production is running.

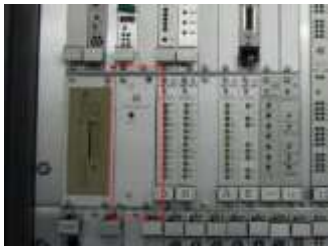
■HDD used for Dual HDD system is easily obtainable and reasonable in the market.

Number of installed Dual HDD system at semiconductor factories in the world is approximately 6,000+ !

Dual HDD mountable equipment

A lot of process equipment as listed below still equip SCSI/IDE type HDD

1. Etching
2. WET・CMP
3. Diffusion・CVD
4. Ion implanter
5. Photolithography
6. EPI
7. PVD・Vaporization
8. Measurement
9. Assembly



Feature of Dual HDD

This is RAID 1 (Mirroring) control unit designed to be suited to 3.5 inch HDD. This unit equips two standard communication spec of SATA (Serial ATA) type 2.5 inch HDDs internally and this special structure enables equipment to prevent it from stopping even though one of two HDD unexpectedly crashes.
Then the unit also responds to “Hot-swap performance” so user can exchange one of 2.5 inch HDDs while equipment is still running. When a 2.5 inch HDD is installed, copy of data from another HDD is automatically started. Furthermore, accessible 2.5 inch HDD does not have volume restriction so user can procure standard reasonable SATA HDD in the market very easily.

Designed for **3.5 inch HDD size**

Use of contemporary communication Standard(SATA) 2.5 inch HDD

SCSI/IDE type Compatible to old PC

Hot-swap enabled (Exchangeable during electrical continuity)

Easy to make Back-up disk

HDD swappable during equipment running

Automatic data configuration only with unilateral HDD swap

No restriction of SATA HDD volume **(up to 2TB)**

We propose you to use this Dual HDD for test evaluation!

Epoch-making unit to avoid equipment cessation due to HDD crash

3 features

1. To avoid cessation of equipment
   - HDD is swappable while equipment is running.
   - Equipment does not stop though one of two HDD crashes.
2. Wider compatibility
   - More than 6,000 unit installed in the world
   - Compatible to various processes (process/inspection equipment)
3. Reasonable maintenance cost
   - Easily obtainable HDD in the market (approximately JPN 10,000)
   - Simply HDD replacement (connect and disconnect)