An Automated Data Acquisition System

Toshiaki Wakita

Sony Electronics Inc.

1 Sony Dr.

Park Ridge, NJ. 07656

Phone : 201-930-6607

FAX : 201-358-4215

E-mail : Toshiaki_Wakita@mail.sel.sony.com

THIC Meeting at SEATAC Airport Center

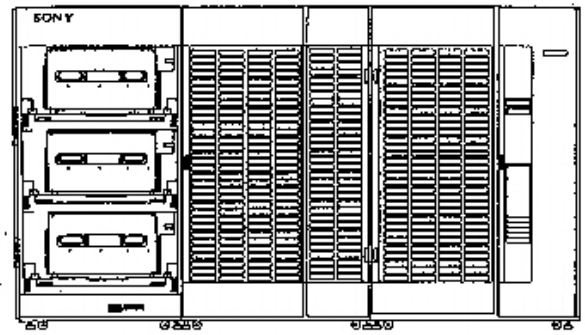
Seattle, Washington

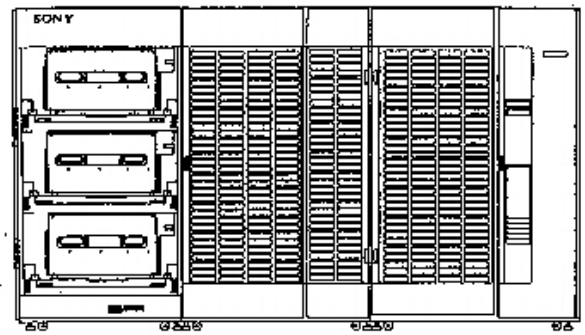
January 19,1999

SONY

Overview

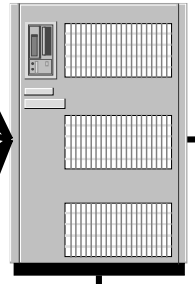
Sony DIR-1000/ DMS-700
736 M cassettes/ robotics
3 Recorders/ robotics

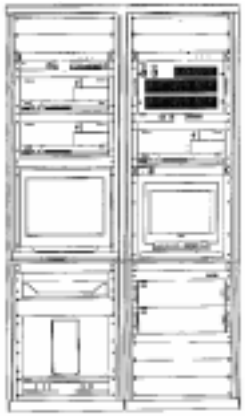




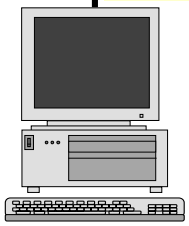
6 Streams of Signal

Each stream
3 channel low level analog signal
3 MHz of Bandwidth





Signal monitor
Analysis



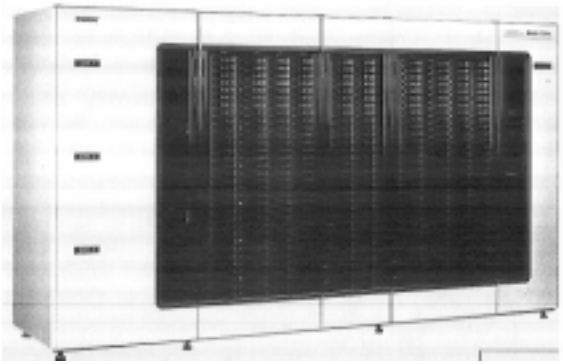
Fs :8 MHz /10 bit

32 MBps/ Stream

20 min./ cassette
72 cassettes/ day

SONY

Sony DIR-1000/ DMS-700M



- DIR-1000
  - ID-1 format
  - 32 MB/s of Recording Speed
  - 43 GB of Capacity / Medium Cassette
- DMS-700M
  - 736 Medium Cassettes
  - 30 TB

SONY

Requirement

- **There are 6 streams to be recorded. Each stream has 3 channels of wide band(3 MHz) signal.**
- **Record one (or partially two) of 6 streams**
  - **24 hours/ day, 7 days/ week, 30 days / month**
- **Recorded Data can be reproduced during recording**
  - **Monitor**
  - **Copy**
- **Recorded Data shall be kept 2 weeks after recorded**
  - **Important data(less than 5 %) will be kept longer**
  - **Another Data will be over written**
- **Tapes will be used repeatedly**

SONY

Objectives

- Automated Data Acquisition System
  - Lightout operation
  - Seamless recording of more than 30 days
- Signal to Noise Ratio of better than 60 dB
- To allow playback during recording the data

SONY

Automated System

- **Necessity for an Automated System**
  - All equipment must be controlled
  - Host can get status of all equipment
  - Flexibility of recorder selection is key for continuous recording
  - Flexibility of stream selection is key for scheduled recording
- For Precise Timing Control
  - Use SYNC signal(same as ID-1)

SONY

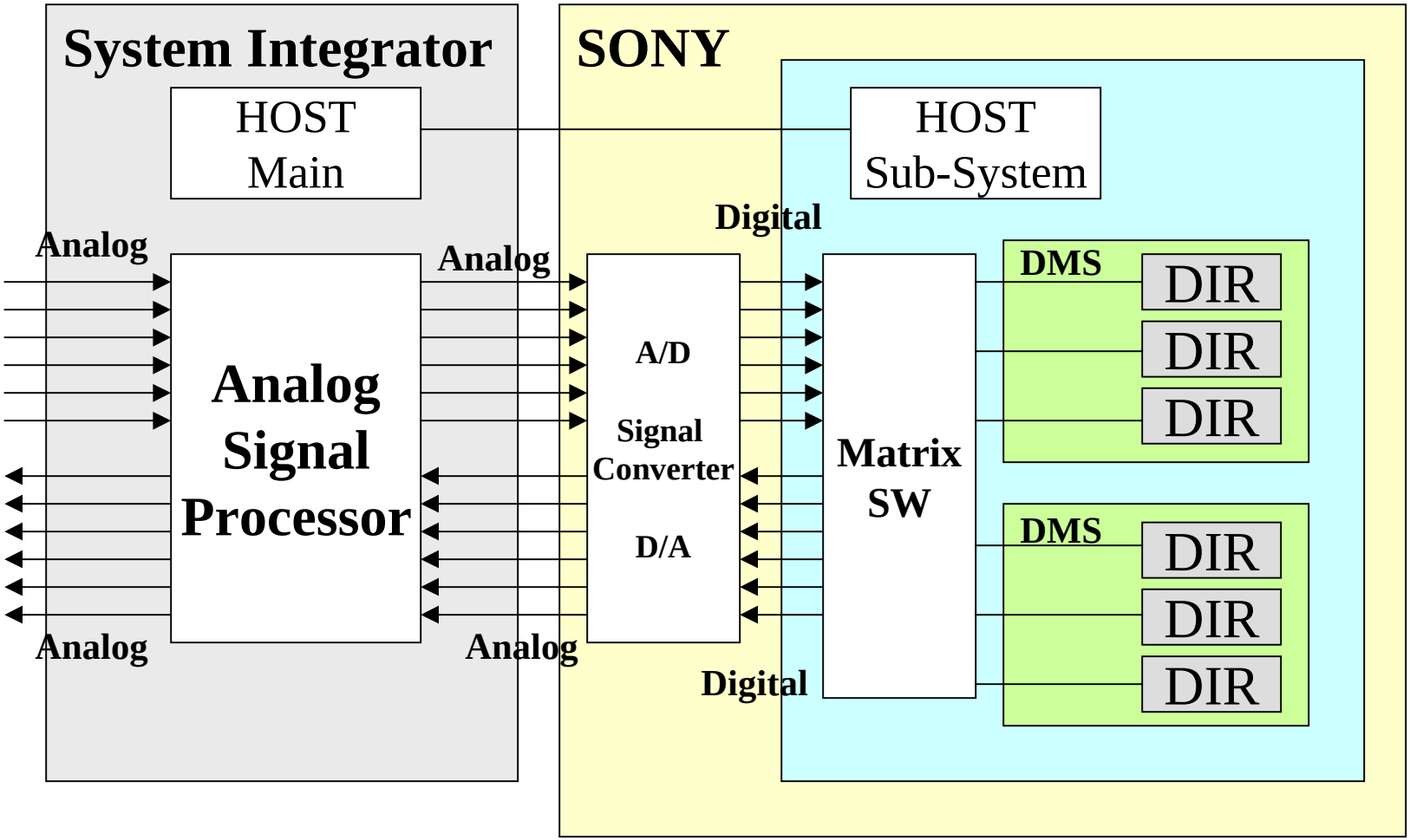
Automated System

Reproduce

- **To Reproduce Any Data**
  - Precise Timing Control
  - Host must know the location of the data
  - Reproduced any data with any length
    - Must be seamless to keep information

SONY

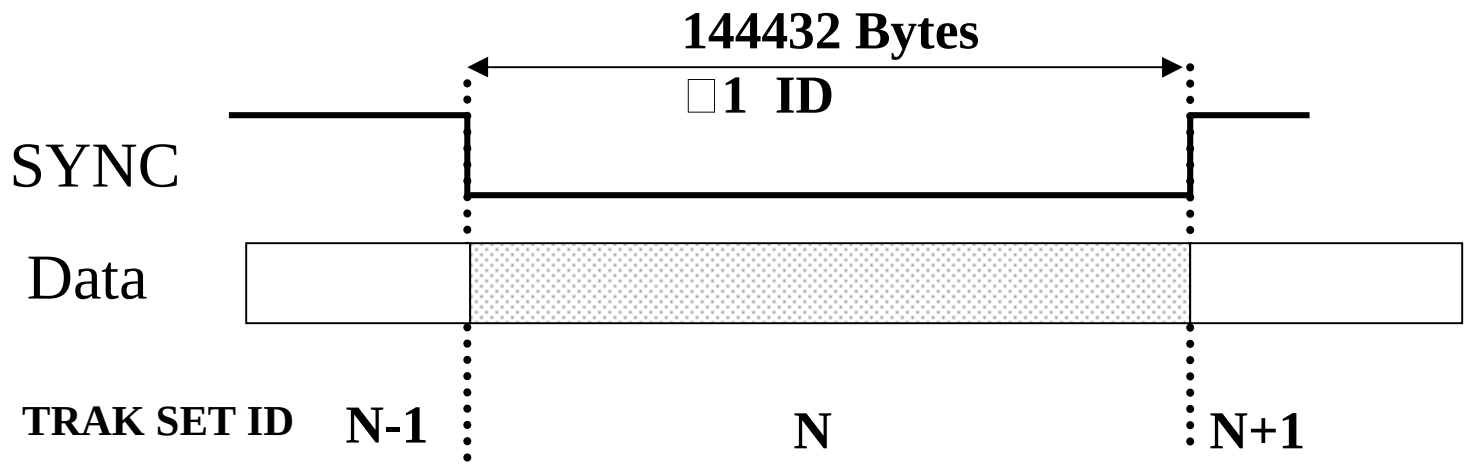
System Overview



SONY

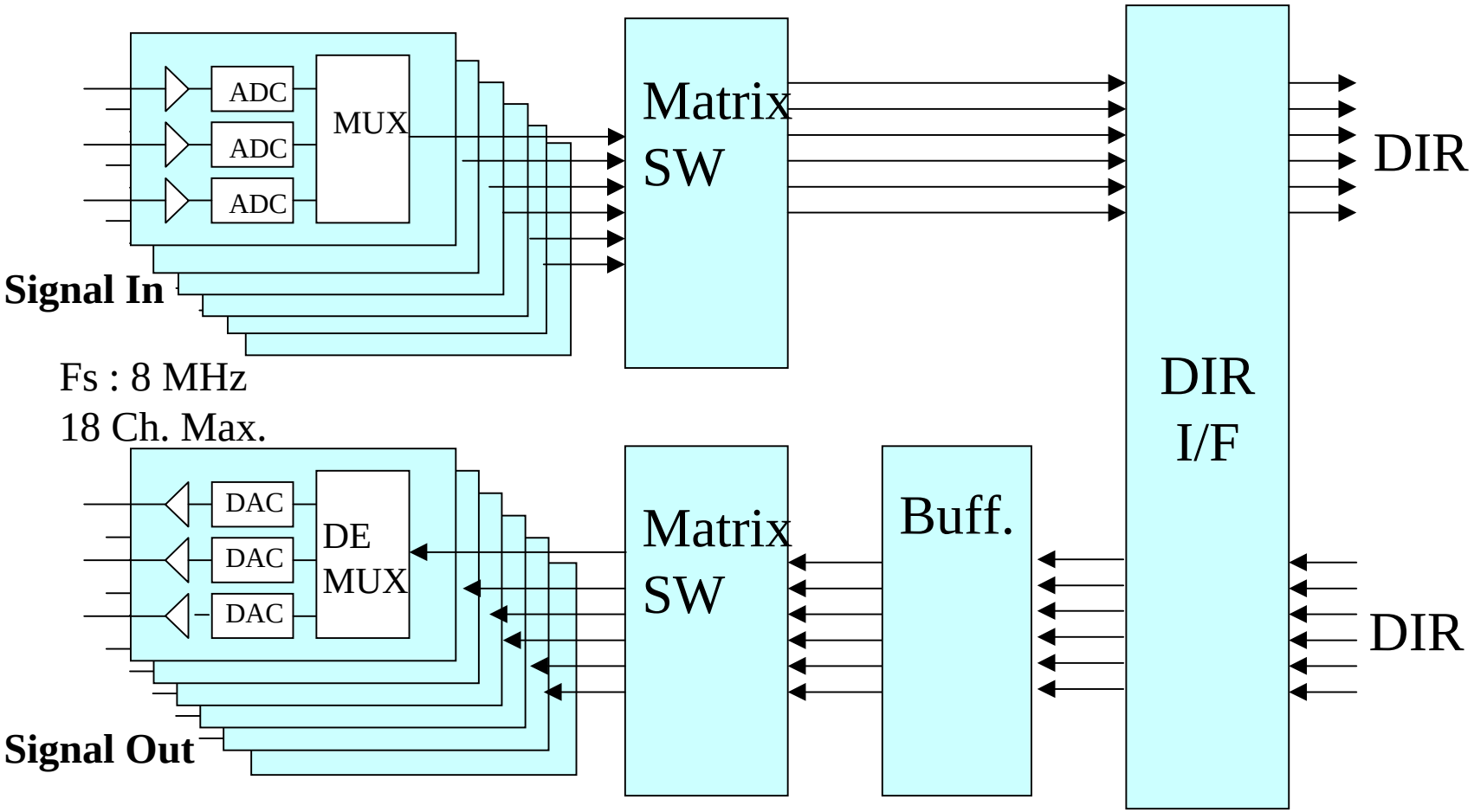
ID-1 Format

Signal I/O



SONY

Configuration (signal)



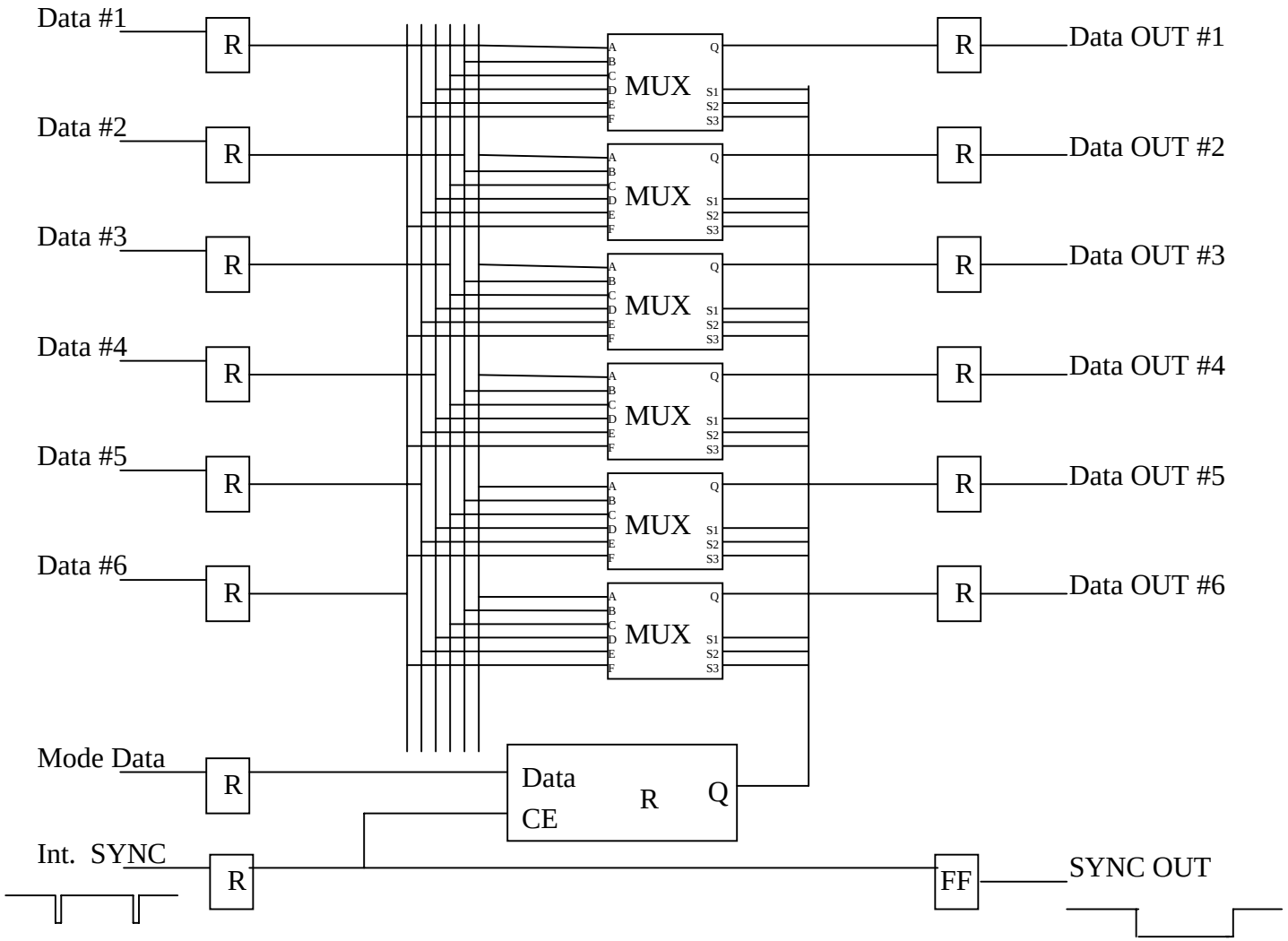
SONY

Analog Interface

- 6 x 3 ch of **10 bits** A/D and D/A converters
  - S/N > 60 dB
- Ultra low harmonic distortion(12 bits ADC)
  - 2nd and 3 rd
- Sampling Frequency of 8 MHz
  - Total bit rate must be 256Mbits/s
- Group Delay Maximum Flat Filter
- 3 channels of digital data were combined into one stream

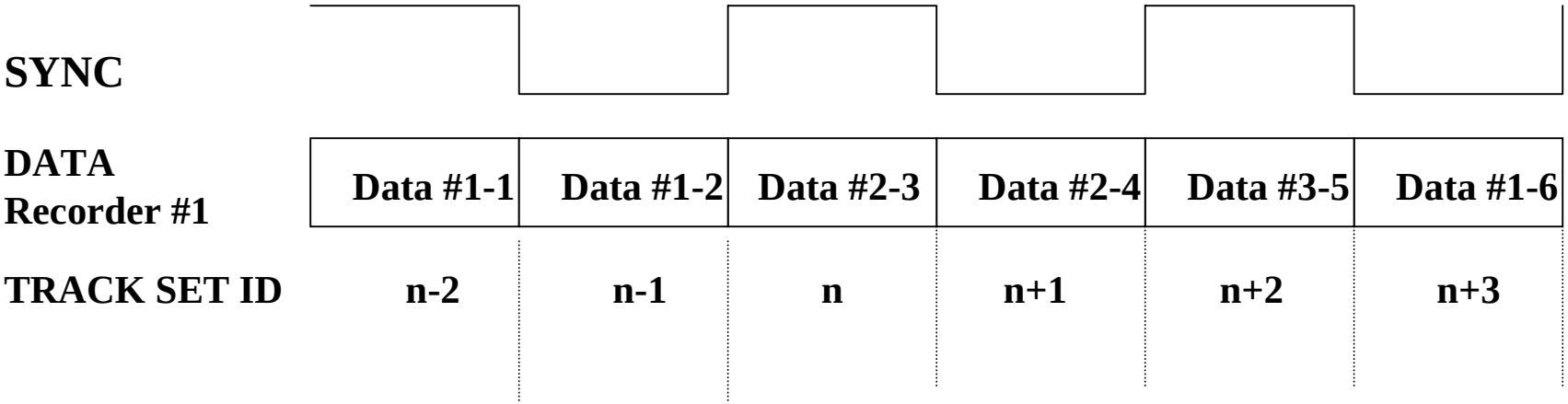
SONY

Matrix SW



SONY

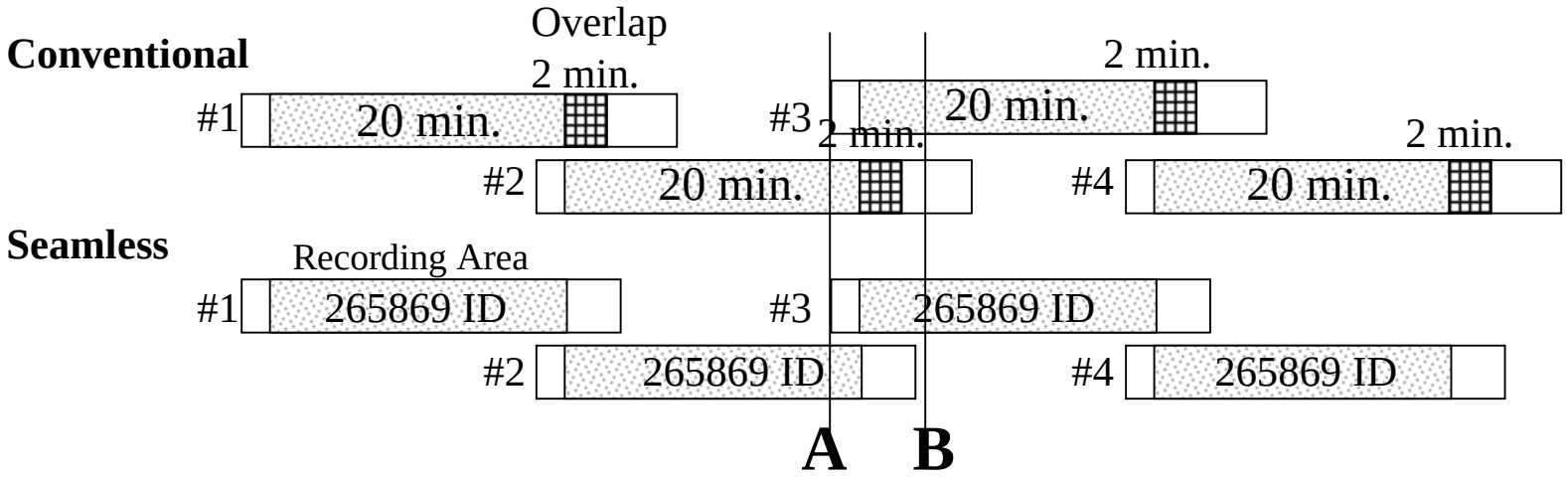
Matrix SW



SONY

Seamless Recording

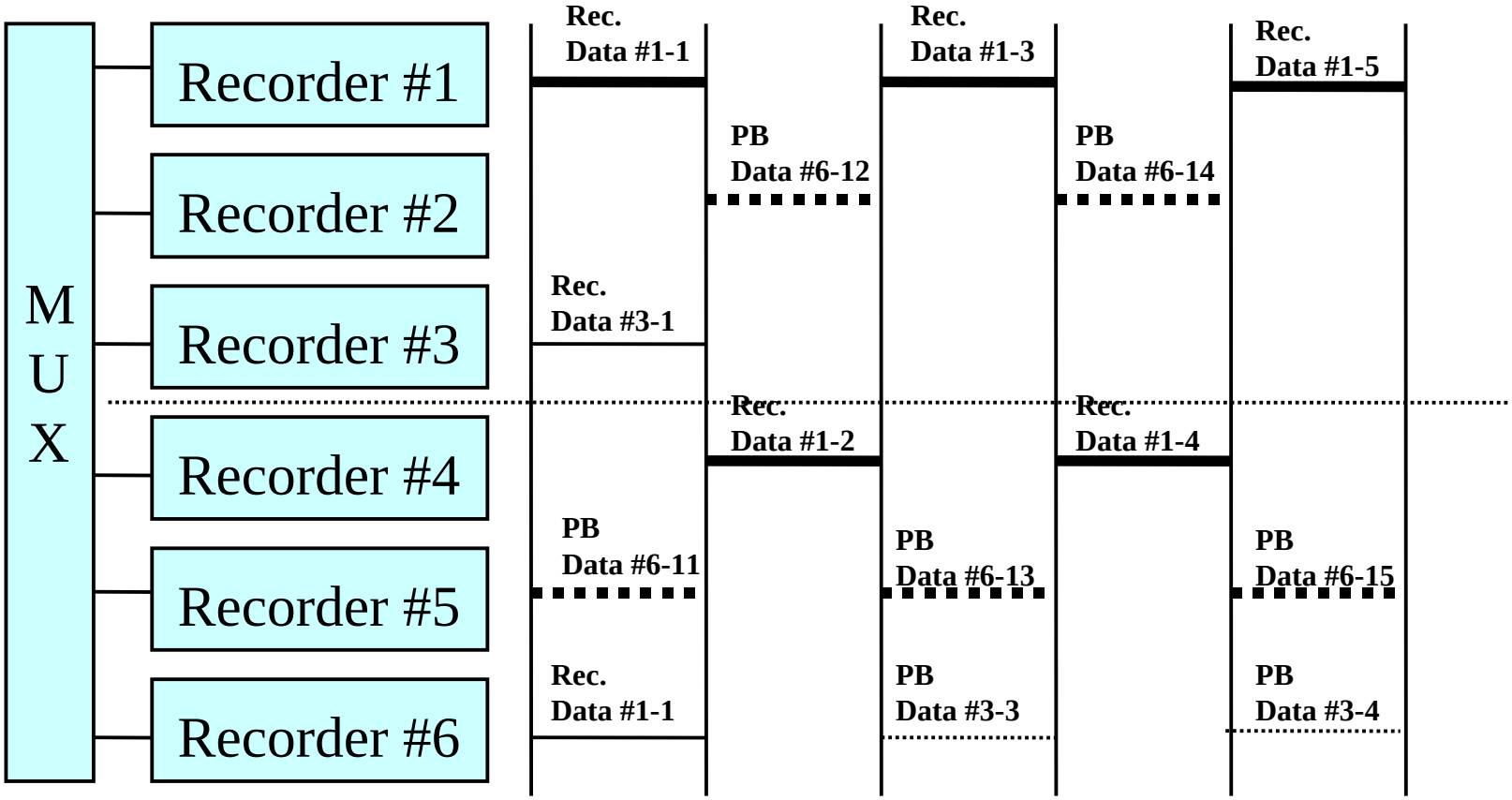
Merit of Seamless Recording



- Can be controlled by Tape number and ID number
- Can be handled as recorded in one tape
- Can reproduce the data continuously regardless data location on Tape
- More efficient in the usage of the tape

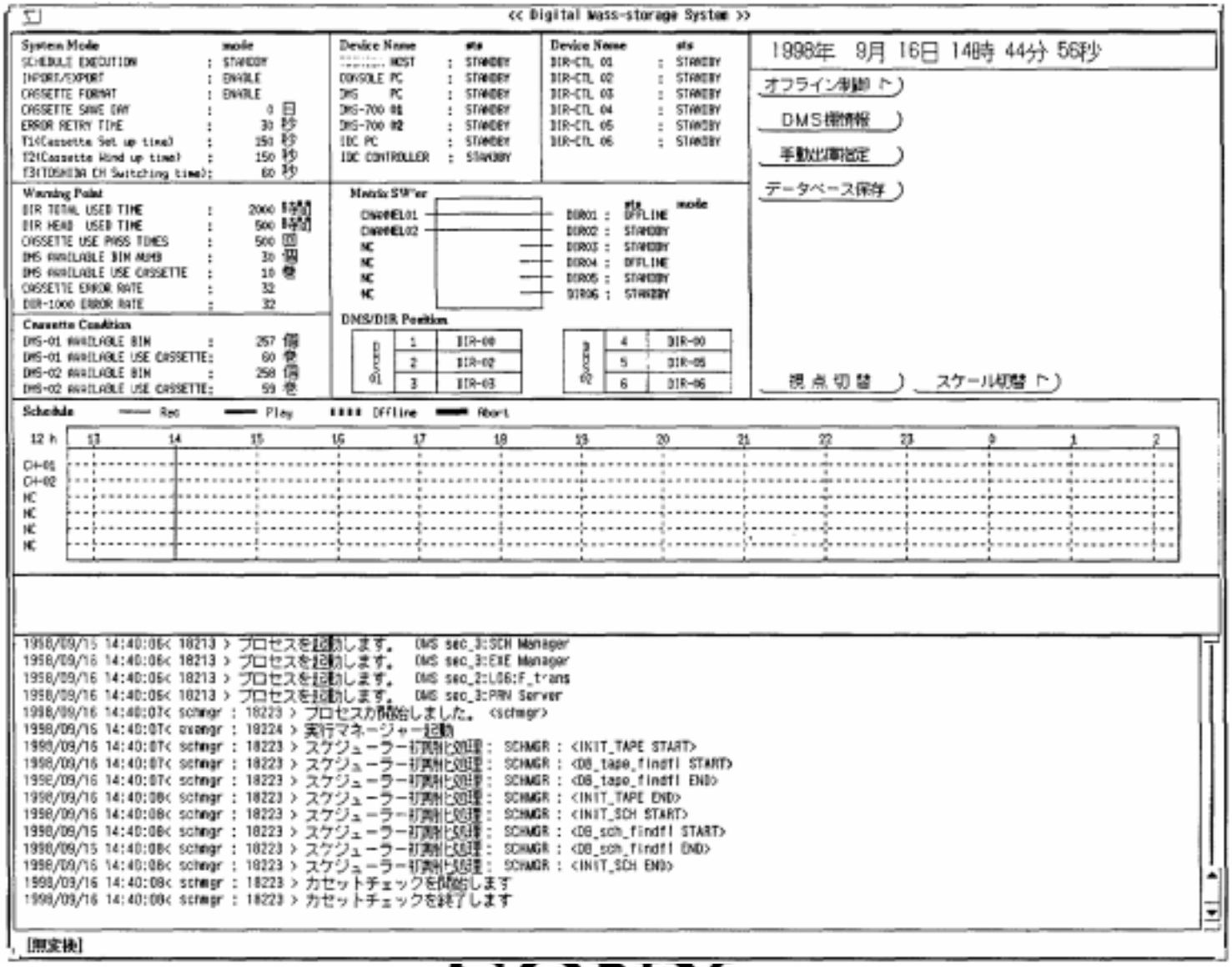
SONY

Schedule Example



SONY

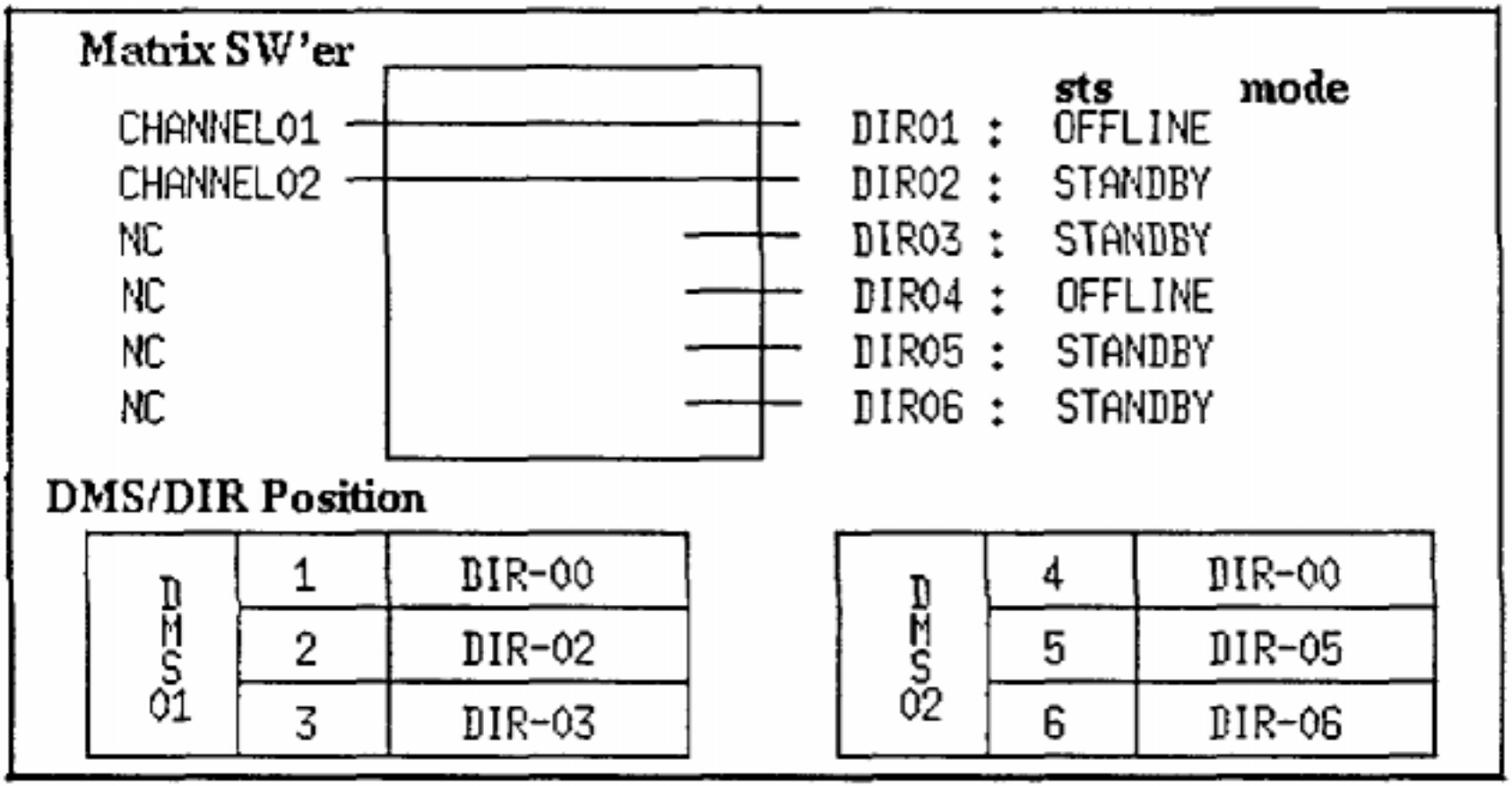
SYSTEM Monitor



SONY

SYSTEM Monitor

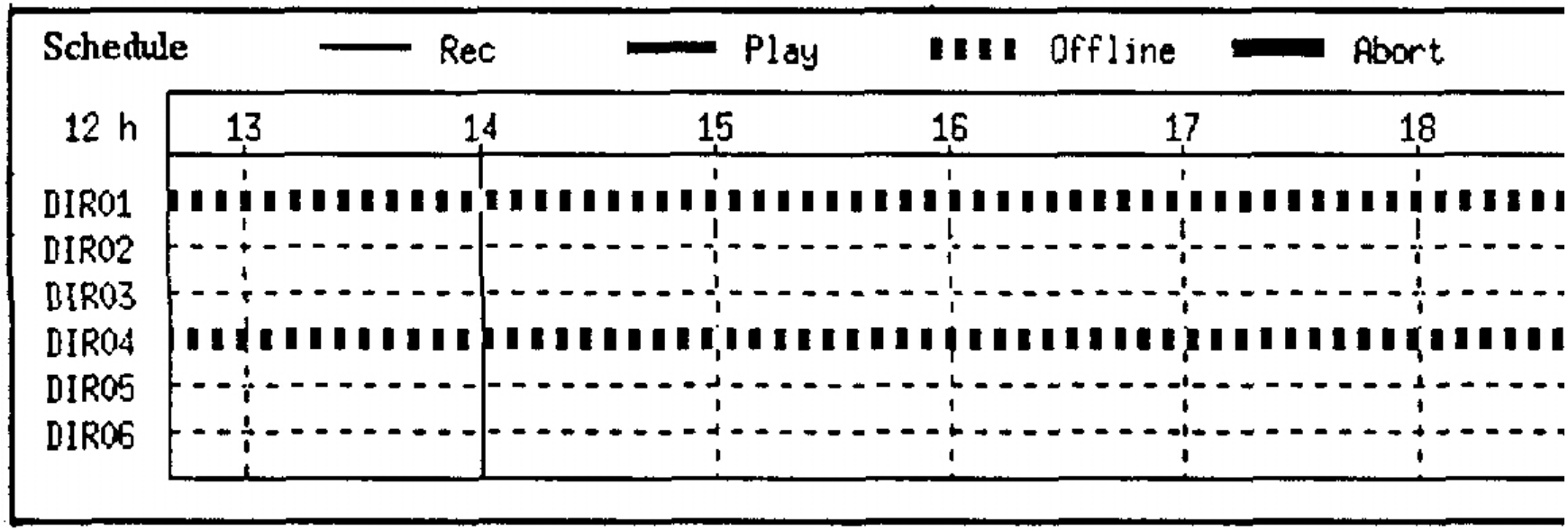
Matrix SW'er / DIR Status



SONY

SYSTEM Monitor

Schedule Information



SONY

SYSTEM Monitor

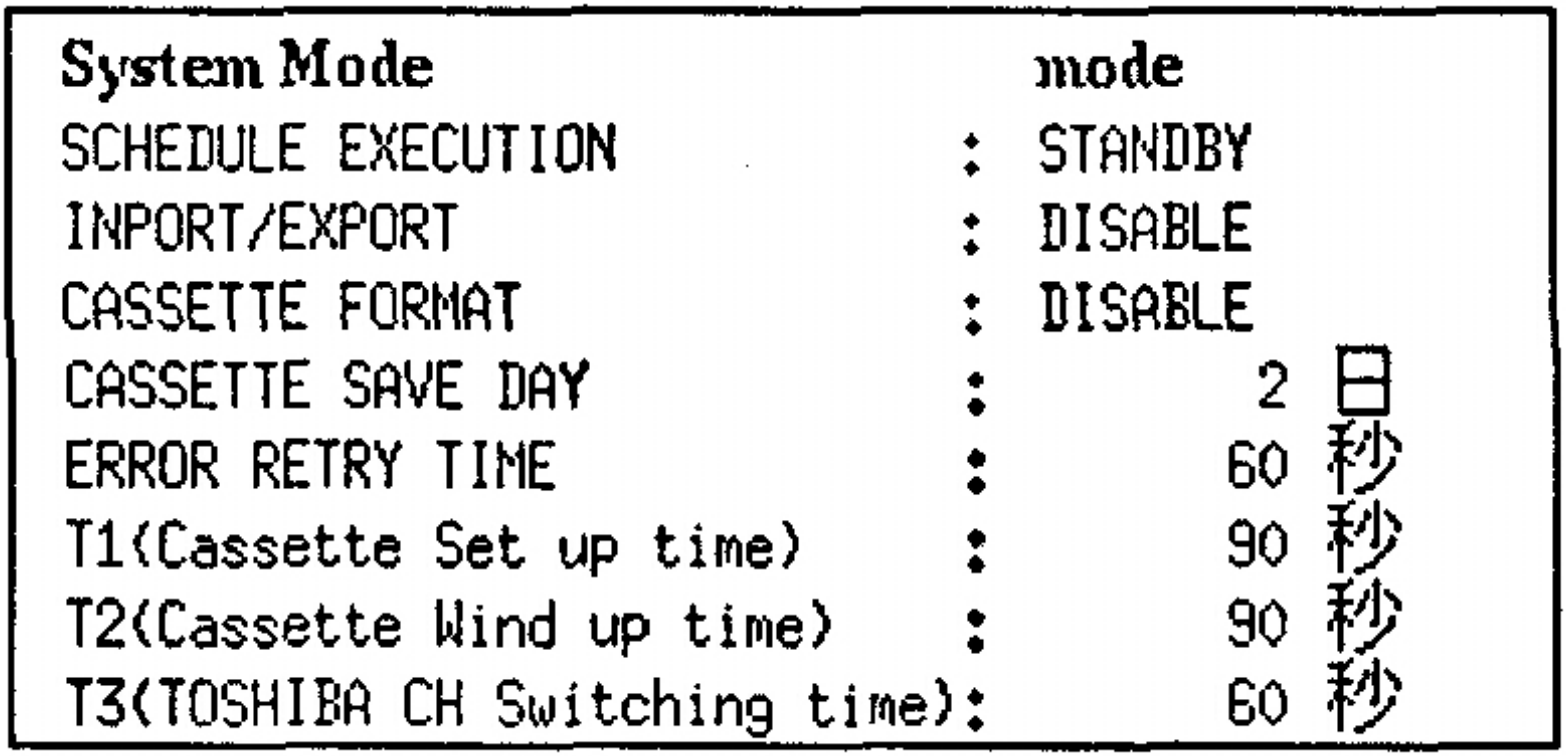
Device Status

Device Name		sts	Device Name		sts
[illegible] HOST	:	STANDBY	DIR-CTL 01	:	STANDBY
CONSOLE PC	:	STANDBY	DIR-CTL 02	:	STANDBY
DMS PC	:	STANDBY	DIR-CTL 03	:	STANDBY
DMS-700 01	:	STANDBY	DIR-CTL 04	:	STANDBY
DMS-700 02	:	STANDBY	DIR-CTL 05	:	STANDBY
IDC PC	:	STANDBY	DIR-CTL 06	:	STANDBY
IDC CONTROLLER	:	STANDBY			

SONY

SYSTEM Monitor

System Mode



System Mode		mode
SCHEDULE EXECUTION	:	STANDBY
INPORT/EXPORT	:	DISABLE
CASSETTE FORMAT	:	DISABLE
CASSETTE SAVE DAY	:	2 日
ERROR RETRY TIME	:	60 秒
T1(Cassette Set up time)	:	90 秒
T2(Cassette Wind up time)	:	90 秒
T3(TOSHIBA CH Switching time)	:	60 秒

SONY

Conclusion

- Customer is satisfied in this system
  - All Requirement was Achieved
  - 8 Similar System have been installed in Japan during last 6years
  - 2 more systems will be installed in 2000

SONY