SONY

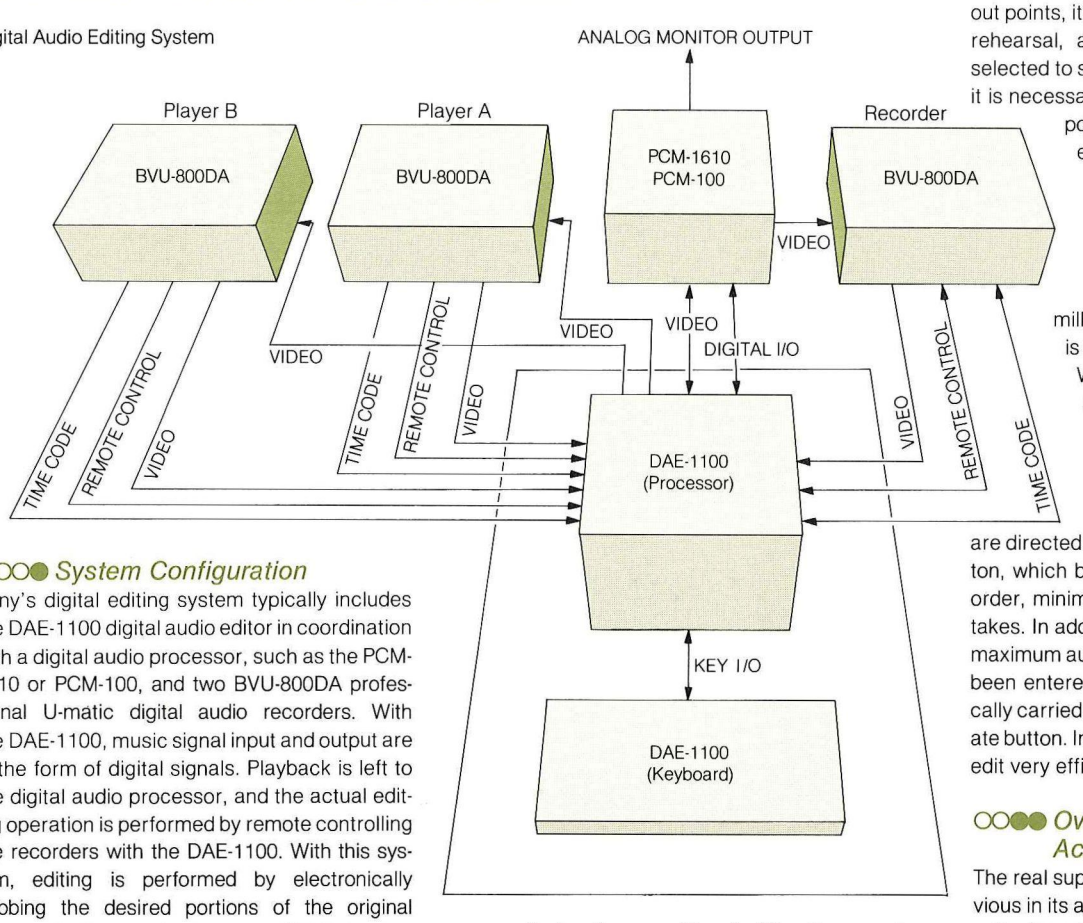
Digital Audio Editor

DAE-1100

Advanced digital editing —its time is NOW with Sony's versatile DAE-1100.

Editing is an essential process in professional recording. To maintain the high quality of digitally recorded tapes, direct digital-to-digital editing is also crucial. Sony's all-out research on digital audio technology has once again proved to be vital in this particular area and has led to exactly the kind of editor that professional recording engineers have been hoping for. The DAE-1100 digital audio editor provides fully electronic control of digital dubbing editing, eliminating any possibility of signal degradation originating in the editing process. It also features editing accuracy and smoothness never before achieved through conventional analog methods. With this advanced editor, you can now have a new level of flexibility and creativity in your digital program production.

Digital Audio Editing System



○○○● System Configuration

Sony's digital editing system typically includes the DAE-1100 digital audio editor in coordination with a digital audio processor, such as the PCM-1610 or PCM-100, and two BVU-800DA professional U-matic digital audio recorders. With the DAE-1100, music signal input and output are in the form of digital signals. Playback is left to the digital audio processor, and the actual editing operation is performed by remote controlling the recorders with the DAE-1100. With this system, editing is performed by electronically dubbing the desired portions of the original tapes onto the master tape, resultig in a great advantage over analog means that the same original tape can be used repeatedly.

○○●○ Editing with the DAE-1100

To facilitate search operation for the desired edit point as well as to ensure high edit accuracy, the DAE-1100 incorporates an advanced memory system plus a convenient search dial. The information data in the vicinity of the approximate edit point, equivalent to about 3 seconds before and after, for a total of about 6 seconds, are first stored in the digital memory. Then, the exact edit point can be searched for within this time range, reproducing the sound by shuttling the search dial in a manner similar to turning the reels on an analog open-reel tape recorder. The search dial provides complete control over playback speed in both forward and reverse directions, and the data stored in the memory are read out accordingly. If automatic operation is desired, the search speed can be set at either normal or 1/2 normal.

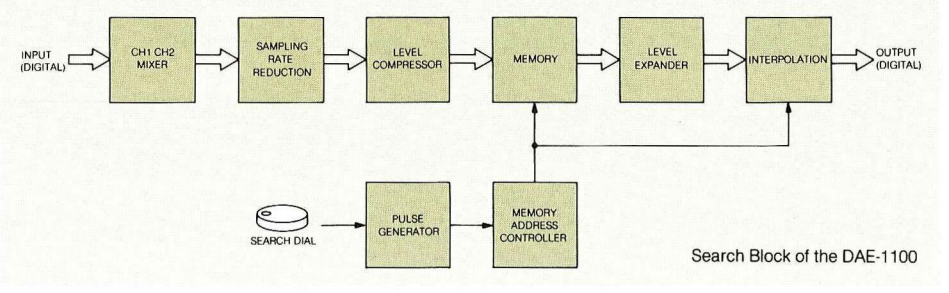
Once the edit points are located for both the recorder and the player as the fade-in and fade-out points, it is possible to try a rehearsal. In the rehearsal, any of three preroll times can be selected to suit the requirements exactly. When it is necessary to modify the fade-in or fade-out point, the new point can be located, either forward or backward, by rotating the search dial as before. This is called the "time offset function" and is possible in a range of about ±1 minute, with a 360° turn of the search dial corresponding to a 36-millisecond shift in the direction the dial is turned.

When the edited portion sounds fine after another rehearsal, you can move on to automatic editing. The edited result can also be reviewed immediately after.

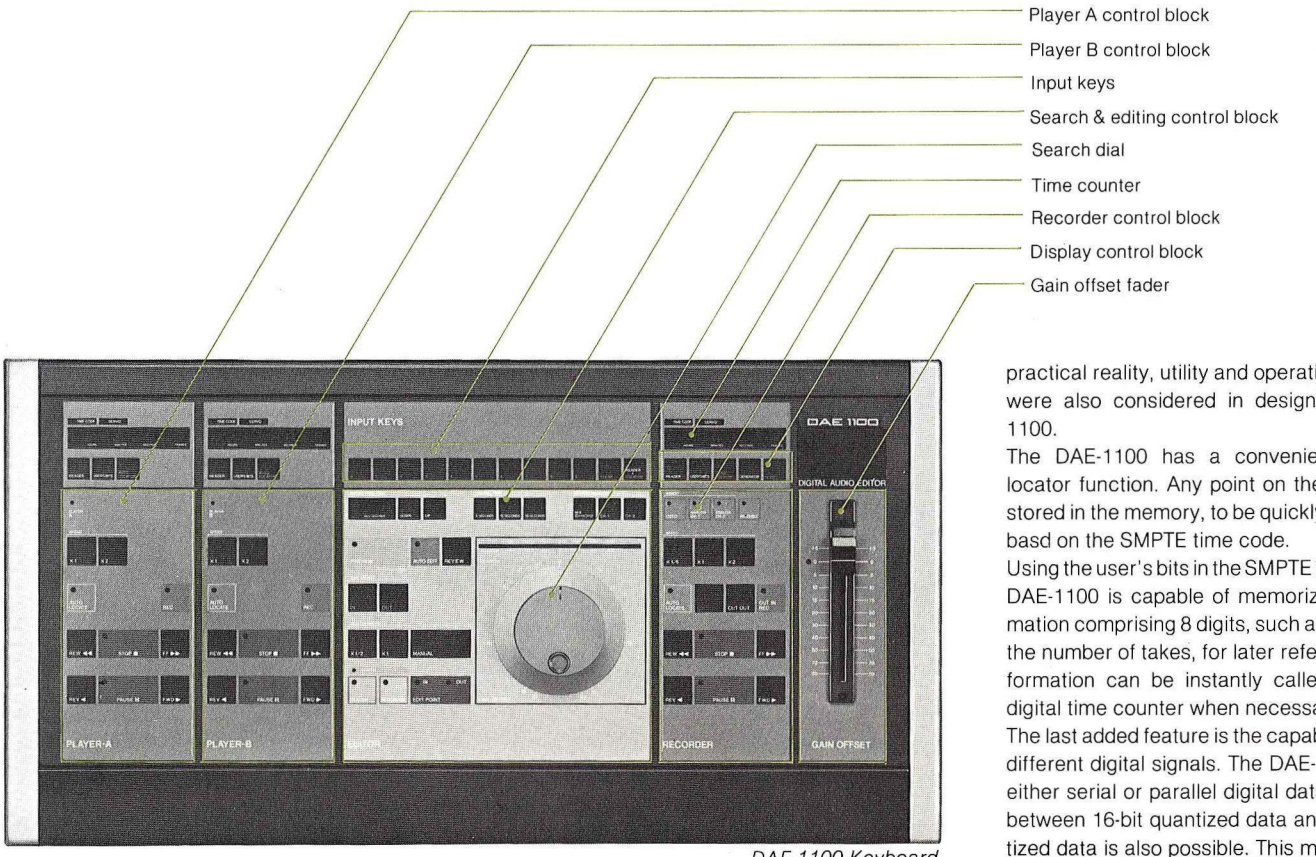
All of these editing operations are directed by the LED lamp built into each button, which blinks on and off to show operating order, minimizing the possibility of making mistakes. In addition, the DAE-1100 is designed for maximum automation. After the edit points have been entered, all procedures can be automatically carried out simply by pressing the appropriate button. In fact, the DAE-1100 will allow you to edit very efficiently, with exceptional ease.

○○●● Over Tenfold Higher Editing Accuracy Than Analog Method

The real superiority of the DAE-1100 is most obvious in its amazingly high editing accuracy. Despite the utmost in operational simplicity and speed, the DAE-1100 specifies an unprecedentedly high editing accuracy.



Search Block of the DAE-1100



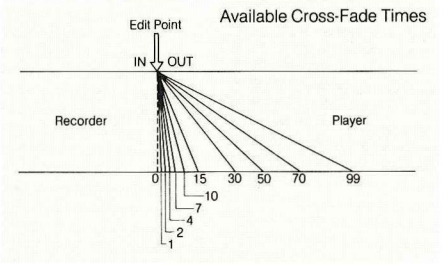
DAE-1100 Keyboard

This is how such a high level of accuracy was achieved. Editing with a digital audio system using VTRs means that the VTR frame is the minimum editing unit. However, music signals in the form of digital codes require much higher accuracy than a VTR frame unit. This necessitates the use of the SMPTE time code as the absolute reference in editing. The DAE-1100 naturally incorporates an SMPTE time code generator/reader.

To edit, the digital codes for about six seconds, including the rough edit point, are stored in the digital memory. Then, the built-in microcomputer carries out calculation necessary for determining from which word of a particular frame the editing should start, under the control of the sampling clock fed in from the digital audio processor. In this way, editing is theoretically possible on the order of sampling cycle. Actually, however, the editing accuracy of the DAE-1100 is set to 363 microseconds, which is equal to 16 words with Sony's professional digital audio processor. This is far more than sufficient, even for professional applications.

○●○○ *Technology to Achieve Smooth Editing*

Two more important techniques have been employed in the DAE-1100 to achieve smooth and natural sound continuity at the edit point. With the tape-splicing methods for analog open reel tapes, the tape is cut diagonally to produce the cross-fade effect, and the cross-fade time varies depending on the angle of the tape cut. With the DAE-1100, this is all done electronically. A unique digital cross fader is incorporated. This is a kind of multiplier and calculates the necessary attenuation for the signals both before and after the edit point at every sampling interval. In addition, ten selectable cross-fade times, ranging from 1 millisecond to 99 milliseconds, are available.



Level adjustment between the signals to be edited is another important factor in editing. Especially with a digital system, a noise may be heard at the edit point if there is even the slightest difference in the digital output levels of the recorder and the player. To solve this problem, the DAE-1100 employs a digital gain offset fader. Simply stated, this fader controls the output level of the player so that it can be matched to that of the recorder. The gain offset is manually controlled with a slide lever on the DAE-1100 keyboard. This lever, just like those on mixing consoles, can also be used to produce a normal fade-in or fade-out effect. Its adjustable range is from + 6dB to minus infinity.

○●●○ *Extra Convenient Functions*

In order to make a digital studio system a true practical reality, utility and operational flexibility were also considered in designing the DAE-1100.

The DAE-1100 has a convenient automatic locator function. Any point on the tape can be stored in the memory, to be quickly located later basd on the SMPTE time code.

Using the user's bits in the SMPTE time code, the DAE-1100 is capable of memorizing any information comprising 8 digits, such as the date and the number of takes, for later reference. The information can be instantly called out on the digital time counter when necessary.

The last added feature is the capability to handle different digital signals. The DAE-1100 accepts either serial or parallel digital data. Conversion between 16-bit quantized data and 14-bit quantized data is also possible. This means that any 2-channel tapes recorded with either of the Sony professional digital audio processors, PCM-1610 and PCM-100, can be dubbed using the other.

○●●○ *Features of the DAE-1100 in Brief*

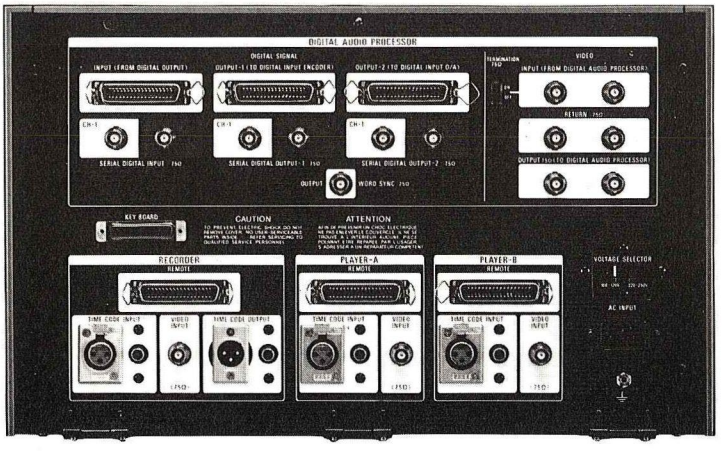
- Disigned for digital dubbing editing to maintain the high quality of digital recording.
- Features outstanding editing accuracy and operation much simpler than analog methods.
- Provides complete remote control over recorder functions.
- Fully equipped for automatic rehearsal, edit, and review.
- A combination of digital memory and a unique search dial helps determine edit point easily and accurately.
- Variable search speed (manual, ×1, or ×1/2)
- Time offset function for shifting the edit point.
- Electronic cross-fade system for smoother transition at the edit point.
- Digital gain offset fader for perfect level matching at the edit point.
- Adjustable preroll time (5, 10, 30 seconds)
- Built-in SMPTE time code generator/reader; the reader accommodates up to 3 recorders.
- Automatic locator function to find any preselected position on the tape automatically.
- Optional recording of user's bits.
- LED lamp built in each button blinks on and off to show operating order.
- Digital time counters.
- Consists of the processor and the keyboard, the processor is designed for 19" standard rack mounting.
- Compatible with all of Sony's professional digital audio processors.

Specifications

Digital input/output:	PARALLEL IN/OUT (for PCM-1600) 16 bits, 2 channels, TTL level, 2's complement code SERIAL IN/OUT (for PCM-1610, PCM-100) 75 ohms, unbalanced, 1.4Mbits/second/channel
Video input/output:	Composite video (NTSC) 0.7Vp-p (data level: 60 IRE)for PCM-1610, 1.0Vp-p for PCM-100, 75 ohms, unbalanced
Time code input:	0dB, 600 ohms, balanced 0dB, 10k ohms, unbalanced, SMPTE time code
Time code output:	0dB, 600 ohms, balanced 0dB, 100 ohms, unbalanced, SMPTE time code
Remote input/output:	TTL level
Tape time counter:	00 hour 00 min. 00 sec. 00 frame to 23 hours 59 min. 59 sec. 29 frames
Editing accuracy:	363μsec. equivalent to 16 words with the PCM-1610/PCM-100
Search mode memory time:	5.95 sec.
Cross-fade time:	1, 2, 4, 7, 10, 15, 30, 50, 70, 99 msec.
Fader level control:	+6dB∼−∞
Edit point time offset:	±59 sec. 29 frames
Power requirements:	AC 100-120V or 220-240V
Power consumption:	160 watts
Dimensions:	Processor: 428(W) × 288(H) × 556(D)mm (16.85 × 11.34 × 21.89'') Keyboard: 722(W) × 85(H) ×385(D)mm (28.45 × 3.35 × 15.16'')
Weight:	Processor: Approx. 27 kg (59 lb 10 oz) Keyboard: Approx. 12 kg (26 lb 8 oz)
Accessories supplied:	BNC to BNC cord (5m × 6) BNC to BNC cord (1m × 9) 36P to 36P cord (5m × 3) 25P to 25P cord (10m × 1) Cannon XLR-3-11C to Cannon XLR-3-12C cord (6m × 4) AC power cord (1)

Design and specifications subject to change without notice.

DAE-1100 Processor Rear Panel

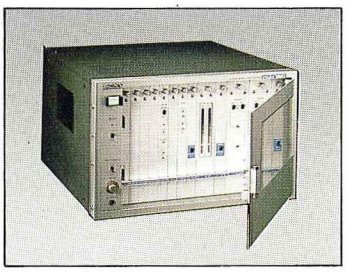


Related Equipment

Digital Audio Processor

PCM-1610

- Two PCM channels
- 44.056kHz or 44.1kHz sampling frequency
- 16-bit quantization for more than 90dB dynamic range
- Flat frequency response (20—20,000Hz +0.5, − 1.0dB)



U-matic Digital Audio Recorder

BVU-800DA

- Fully professional quality
- Electronic editing capability
- Logic control system
- Precision servo control
- SMPTE time code recording/playback function

U-matic Digital Audio Recorder

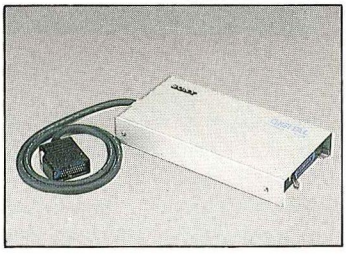
VO-5850DA/5850PDA

- Professional quality
- Electronic editing capability
- Logic control system
- Precision servo control

Interface Box

IF-5850DA

- Used to connect the VO-5850DA or the VO-5850PDA to the DAE-1100 processor



Keyboard Stand

SU-9

- Specifically for mounting the DAE-1100 keyboard
- Adjustablle top board angle
- Equipped with casters for easy mobility

Sony Corporation
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