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P R O C E E D I N G S

1
2 Speaker: Good afternoon. Welcome to 380. Just
3 a quick reminder. As the book goes around, those of you
4 who were enrolled in the class, please sign it. And you
5 might pick up the missing slots that you have not signed
6 for in the past, annotating them appropriately.

7 Our speaker for next week will be Tom Blank.
8 He's going to speak on incremental CAD techniques for
9 systems design. But it turns out to be a euphemism for
10 three things that he thinks are very interesting and it
11 promises to be a fairly exciting talk.

12 For those of you who are keeping track, the Sun
13 Microsystem talk scheduled for March 11th has been
14 canceled and we will have a new speaker for you. There
15 are actually two possible speakers, one of whom is as yet
16 uncommitted. But if it can be worked out, it will cover a
17 particularly interesting area of the law and software at
18 the moment.

19 Our speaker for today is David Schwartz and John
20 Stoffner. They're from Compusonics, a startup company
21 here in Palo Alto. They're going to speak on
22 multiprocessor computers for digital, audio and video
23 recording and editing. It's a masterful sound and light
24 show, I think. And I'll introduce Dave and he can take
25 care of the remaining introductions and the rest of the

1 afternoon.

2 Mr. David Schwartz: Thank you, Dennis. We're
3 going straight to slides. The talk -- we changed the
4 title of the talk, of course, without telling Dennis.
5 It's now inside the DSP-1000 audio computer. John
6 Stoffner is heading up the video project, but we felt that
7 trying to do two talks in one session, both audio and
8 video, would just get to be too much. So we'll cover the
9 audio. And if you're still interested, we can be invited
10 back and get more into the video processors.

11 This is the machine we're going to talk about
12 today. It's the DSP-1000. It's a computer that is an
13 audio device. It records. There's a cartridge in there.
14 I may as well start by this -- John, could you help me
15 out? I'm tied down. Just hand the cartridges out. I'd
16 like these back. Just hand them to the audience. Just
17 pass them around.

18 Those are the optical disks that this machine
19 records on. They are write once optical disks. They're
20 double sided, 233 megabytes per side. They're made by
21 several companies. The ones that you're handing around
22 are made by Dysel Chemical Company in Japan. They're also
23 made by Phillips and 3M and Plasma in England.

24 Do I ask for slides? Or do they automatically
25 change them?

1 Speaker: Just ask for them.

2 Mr. David Schwartz: Slide. The DSP 1000 has a
3 number of outstanding points. I'll summarize the big
4 ones. The recordings are permanent. I think you're all
5 familiar with tape recorders and what happens with tapes
6 and cassettes.

7 The quality of the recording is equivalent when
8 making an original recording with the machine that is
9 using microphones and recording a live performance, you're
10 effectively making a digital master, like the compact disk
11 master. Although the format is different, we do sample at
12 44.1 kilohertz, 16 bit linear samples in stereo.

13 So we think the quality's very high. Of course,
14 it's random access. Since it's a computer, its editing
15 software is built in. We'll talk about that.

16 It interfaces to any computer really over the RS
17 232 port. The first software that we're bringing out for
18 interfacing is MS DOS software because we all know the
19 world is according to IBM at this point.

20 And the error rate of the disk is very, very
21 low, especially compared to compact disks or CD ROM. The
22 error correction board, made here in Valley, corrects to
23 10(-12) beta errors, which makes it suitable for any type
24 of data storage.

25 Slide please. The recording time varies. There

1 are two key technologies in here. One is the high
2 capacity storage medium and a computer that can use it in
3 real time. And the other is digital signal processing
4 which is used to optimize the storage on the disk. It's
5 also used to create what you might say is the emulation of
6 tape speed.

7 Of course, there's no tape. So there's no tape
8 speed. So we have what we call short for Compusonics,
9 CSX. There are three settings that are user selectable
10 from the front panel, CSX2, very high fidelity of stereo,
11 equivalent to master recording, 30 minutes per side of the
12 disk. CSX4 is about what you'd get from a very high
13 quality professional tape recorder, an analog tape
14 recorder. Say a Studer or an Atari Pro analog half inch
15 or Ampex half inch deck. CSX8 is a baud limited signal,
16 but very clean up to six kilohertz. It's mainly intended
17 for very old records which don't have any high frequency
18 material at all other than surface noise or speech, very
19 high fidelity speech. Or, of course, AM radio which runs
20 on that bandwidth.

21 Of course, if you turn the disk over, you have
22 double the recording time too. Slide.

23 Speaker: We're averaging a minute 30 seconds on
24 the slide.

25 Mr. David Schwartz: Oh, boy. We're in trouble

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