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FEDERAL TRADE COMMISSION  
I N D E X (P B L I C R E C O R D)

I ' N E S S :      D I R E C '      C R O S S      R E D I R E C '      R E C R O S S  
G . K      2499      2605      2752      2758

E X H I B I ' S      F O R I D      I N E I D

C

N      46      2497  
N      54      2497  
N      352      2498  
N      1252      2605

R

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J

N      17      2498  
N      19      2498  
N      25      2498  
N      A      2604  
N      B      2604  
N      C      2604

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UNITED STATES OF AMERICA  
FEDERAL TRADE COMMISSION

In re: [redacted] )  
[redacted], I.C. ) Docket No. 9302  
-----)

April 21, 2003

9:30 a.m.

TRIAL ROOM 14

PAR 1

PUBLIC RECORD

BEFORE THE HONORABLE STEPHEN J. MCGUIRE

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... D.C.

[redacted] J: J... F.H., RMR-CRR

FREDERICK I.C.  
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F R I .  
(301) 870-8025

P R O C E E D I N G S

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J DGE M G IRE:

M . K , I

A

M . O ?

MR. OLI ER: H

J DGE M G IRE:

MR. OLI ER: F H C-46.

1993.

MR. PERR : N

J DGE M G IRE: E

(C E N 46

.)

MR. OLI ER: S C-54.

1993.

MR. PERR : N

J DGE M G IRE: E

(C E N 54

.)

1 MR. PERR : N .

2 J DGE M G IRE: E .

3 (J E N 17  
4 .)

5 MR. OLI ER: F J -19.

6 42.3 M 1994.

7 MR. PERR : N .

8 J DGE M G IRE: E .

9 (J E N 19  
10 .)

11 MR. OLI ER: F C -352.

12 I M 9, 1994.

13 MR. PERR : N .

14 J DGE M G IRE: E .

15 (C E N 352  
16 .)

17 MR. OLI ER: S J -25.

18 42.3 M 1995.

19 MR. PERR : N .

20 J DGE M G IRE: E .

21 (J E N 25  
22 .)

23 J DGE M G IRE: J

24 , M . K I

25 . H .

F R I .



1  
 2 A. I  
 3  
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 5  
 6 SAM, I  
 7 SAM  
 8 I D  
 9  
 10 Q.  
 11  
 12 IBM  
 13 SAM ?  
 14 A.  
 15 Q. A IBM  
 16 SAM  
 17  
 18 JEDEC?  
 19 A. A  
 20 Q.  
 21 I  
 22  
 23 M . R C  
 24  
 25 D ?



1 A. .

2 Q. A I

3

4 RDRAM, SDRAM

5 ?

6 A. I

7 DRAM.

8 Q. A I

9 M. C

10 ?

11 A. .

12

13 Q. B

14

15 ?

16 A. I

17 I

18 I I

19 R

20 IBM B

21 I

22 I

23 I

24 R DRAM.

25 Q. .

F R I .



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"Q ES 'ION: A

M . C

M . C

RDRAM

SDRAM

JEDEC,

?"

MR. PERR : H

"I

DRAM."

MR. OLIER : H

I

J DGE M G IRE:

?

MR. OLIER : H I

J DGE M G IRE: A . I --

MR. PERR : H . I

J DGE M G IRE:

N

F R I .

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MR. OLIVER:

MR. OLIVER:

Q.

M. C.

JEDEC,

A. I

DRAM

RDRAM

DRAM.

Q.

M. K.

JC 42.3

D 1991. I

J-10

D , M. K. ?

A.

Q.

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A. ...

Q. ...

"A. M."

"S. DRAM HS"

D ?

A. ...

Q. D ?

A. , I .

Q. ... ?

A. ... M K

DRAM

Q. M K

... ?

A. ...

Q. N M K

... ?

A. ...

Q. A ?

A. ...

Q. C

A. . I M

F R I

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DRAM

Q. N

I

JEDEC?

A.

Q. B

JEDEC

M. K

JEDEC

?

A.

Q. A

JEDEC

A.

Q. M. K

JC-42.3

F

1992.

A. D I

Q. I

M

H ?

J DGE M G IRE:

F R I

1 B. MR. OLIER:

2 Q. M. K

3 J-12

4 D ?

5 A. .

6 Q. ?

7 A. JC-42.3

8 F 1992.

9 Q. ?

10 A. .

11 Q. C 1 5 J-12.

12 A. .

13 Q. I I

14 4 . I "A I L ."

15 D ?

16 A. , I .

17 Q. "M. K

18 R B ( B) ."

19 D ?

20 A. , I .

21 Q. C 1

22 R B ?

23 A. I

24

25 R B ,

F R I .

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JEDEC

JC-42.3

17.

"A" B."

312.1,

2,

F R I



1 A. .

2 Q. A J [unclear] [unclear] [unclear]

3 [unclear] [unclear] [unclear] IBM?

4 A. .

5 Q. [unclear] [unclear] [unclear] [unclear] [unclear]

6 ?

7 A. [unclear] [unclear] [unclear] [unclear] [unclear]

8 [unclear] I IBM [unclear] [unclear] [unclear]

9 [unclear] [unclear] [unclear] [unclear] [unclear]

10 [unclear] [unclear] [unclear] [unclear] [unclear]

11 [unclear] [unclear] [unclear] [unclear] [unclear]

12 [unclear] [unclear] [unclear] [unclear] [unclear]

13 Q. A [unclear] [unclear] [unclear] [unclear] [unclear], 312.1,

14 [unclear] [unclear] [unclear] [unclear] [unclear] ?

15 A. [unclear] [unclear] [unclear] [unclear] [unclear]

16 Q. N , M . K [unclear] [unclear] [unclear]

17 [unclear] [unclear] [unclear] [unclear] [unclear] JEDEC ,

18 [unclear] [unclear] [unclear] [unclear] [unclear] ?

19 A. [unclear] [unclear] [unclear] [unclear] [unclear]

20 [unclear] [unclear] [unclear] [unclear] [unclear]

21 [unclear] [unclear] [unclear] [unclear] [unclear]

22 Q. I [unclear] [unclear] [unclear] [unclear]

23 [unclear] [unclear] [unclear] [unclear] [unclear]

24 [unclear] [unclear] [unclear] [unclear] [unclear] JEDEC ?

25 A. .

1 Q. I I 23

2 Jy -12.

3 A. Q-1.

4 Q. A

5  
6 ?

7 A. R B

8 Q.

9 N , M . K , I

10 M 1992 42.3

11 H ?

12 J DGE M G IRE:

13 B MR. OLI ER:

14 Q. M . K , I

15 C -34

16 D ?

17 A.

18 Q. ?

19 A. JC-42.3

20 M 1992.

21 Q. I I 30

22 C -34.

23 A. Q-1.

24 Q. A

25 , "A E." D ?

F R I

1 A. .

2 Q. D ?

3 A. . I

4 K M G .

5 Q. ?

6 A. ?

7 Q. C .

8 P .)

9 A. . N I

10 .

11 A 1992. JEDEC

12 .

13 .

14 .

15 B K M G .

16 . I

17 K M G .

18 . D A 1992.

19 Q. A .

20 . ?

21 A. .

22 .

23 . 42.3 DRAM .

24 S .

25 DRAM SRAM

F R I .



1 D ?

2 A. , I .

3 Q. F M .H ?

4 A. , I .

5 Q. A M .H ?

6 A. B H

7 IBM

8 . A IBM

1 A. .

2 Q. I I

3 "A-S RAS/CAS

4 DQ." D ?

5 A. .

6 Q. A " ."

7 D ?

8 A. .

9 Q. C

10

11 A. I 1986, DRAM

12

13

14

15

16

17 50-

18

19

20 N 100-

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23 Q. N A 1992

24 M .H JEDEC ?

25 A. .

F R I .

(301) 870-8025

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Q. N

JEDEC

A. A

DRAM

Q. I

SDRAM

A.

Q. A

I

A. I

DDR

SDRAM.

Q.

F R I

1 M . K . I

2 G-34.

3 I I

4 G-35. I

5 JEDEC

6 1992.

7 MR. PERR : 35?

8 MR. OLIER: G-35.

9 H

10 ?

11 J DGE M G IRE:

12 'HE I 'NESS:

13 MR. OLIER:

14 Q. M . K . G-35

15 ?

16 A. .

17 Q. I I 16

18 G-35.

19 A. .

20 Q. IBM

21

22

23 D ?

24 A. .

25 Q. D ?

F R I



1 A. . . . I  
2 K M G .  
3 Q. A I  
4

5 I  
6 A. I  
7

8 Q. A  
9 16, 1992;  
10 A. .

11 Q. S  
12  
13 A. .

14 Q. I I  
15 I "O

16 JC-42."  
17 D ?

18 A. .  
19 Q. C  
20

21 A. I  
22

23 D A  
24 JEDES I  
25

1  
2 S  
3 E N  
4  
5 Ie  
6 Q.  
7 ?  
8 A. O  
9 De  
10  
11  
12 A  
13  
14 Ie  
15 -JEDEC  
16  
17 Q.  
18  
19 JEDEC  
20 ?  
21 A. N . Ie  
22 JEDEC  
23 -JEDEC  
24  
25 JEDEC.

1 Q. D JEDEC

2

3 A.

4 JEDEC

5 Q. A

6 A. B

7 S I

8 Q.

9 A.

10 I

11

12

13 Q.

14 H

15 J DGE M G IRE:

16 L

17 (D .)

18 J DGE M G IRE: M . O

19 MR. OLI ER: H

20 B MR. OLI ER:

21 Q. M . K , I

22 C -1708 I

23

24

25 L

F R I



1 : "N ,

2 EE' N

3 . O

4

5

6 JEDEC . O

7

8 I , K

9 N E I

10 " ,

11 E B N

12 . L

13 M ."

14 D ?

15 A. , I .

16 Q. N , M . K ,

17 M . K MG

18 A 16, 1992?

19 A. N .

20 Q. I

21 M . K MG ?

22 MR. PERR : H

23

24 . I

25

1 M . K

2

3

4 MR. OLIER: H , M . K

5

6 M . MCG

7

8 JEDEC

9 A --

10 MR. PERR: M -- I . G

11 MR. OLIER: A I

12 M . K

13 M . MCG

14 MR. PERR: M

15 H

16 I

17

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1 J DGE M G IRE: A . O . . .

2 I . . .

3 . . .

4 I . . . : I . . .

5 . . . ?

6 N . . .

7 . . . B I . . .

8 . . . I . . .

9 . . . I . . .

10 . . . B I . . . I

11 . . . ? S I . . .

12 . . .

13 MR. OLI ER: H . . . I

14 . . . ?

15 J DGE M G IRE: I . . .

16 B MR. OLI ER:

17 Q. . . M . K . . .

18 . . .

19 . . . M . M G ?

20 A. . .

21 Q. A M . K . . .

22 . . . JEDEC

23 . . . 1992, . . .

24 . . .

25 . . .

F R I .

1 JEDEC?

2 A. [unclear] [unclear] [unclear] [unclear]

3 [unclear] [unclear] [unclear]

4 Q. [unclear] ?

5 A. Be [unclear] JEDEC . I

6 [unclear] JEDEC [unclear]

7 [unclear] [unclear] [unclear]

8 [unclear] [unclear] [unclear]

9 [unclear] [unclear] [unclear]

10 [unclear]

11 Q. [unclear]

12 I I [unclear] [unclear] G-34,

13 [unclear] [unclear] [unclear] 1992

14 [unclear] [unclear] [unclear]

15 A [unclear] M. K [unclear] I I [unclear]

16 [unclear] 31 G-34.

17 A. [unclear]

18 Q. I [unclear] [unclear]

19 [unclear] 31. [unclear] [unclear]

20 "I.A." [unclear] "IBM"

21 "J [unclear] Be."

22 D [unclear] ?

23 A. [unclear]

24 Q. [unclear] I [unclear] J [unclear]

25 [unclear] [unclear] [unclear]

F R I



1 M . S .

2 A . J .

3 IBM PC

5 Q . A I

6 Bed ,

7 IBM

8 Bed .

9 A . IBM Bed

10 F IBM

11 PC .

12 Q . N M . S .

13 1992 ?

14 A .

15 Q . ?

16 ?

17 A .

18 Q . A ?

19 A .

20 Q . D ?

21 ?

22 A .

23 Q . C ?

24 M . S .

25 A . J .

F R I

1 DRAM

2 IBM C I

3 SDRAM IBM

4 PC

5 IBM DRAM

6 Q. I I

7 "LO COS "

8

9

10 A.

11 J

12 SDRAM

13 DRAM.

14 Q. I

15 I

16 DRAM. D ?

17 A. , I

18 Q. ?

19 A.

20 IBM DRAM

21

22 DRAM

23 J IBM PC

24 DRAM,

25 IBM 3

F R I



1 "S DRAM ."

2 D ?

3 A. .

4 Q. A

5 ; ?

6 A. .

7 Q. A I

8 32.

9 A. .

10 Q. B

11 N , M .

12 ?

13 A. .

14 Q. A SDRAM

15 R -- S DRAM R ;

16 ?

17 A. .

18 Q. .

19 D ?

20 A. .

21 Q. B

22 M .

23 "

24 .

25 A. .

F R I .

1 DRAM

2 DRAM

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6 Q.

7 ?

8 A.

9 Q. N

10

11 B.

12 ?

13 A. I . I

14

15

16 MR. OLIVER: H ?

17 JUDGE MCGUIRE:

18 B. MR. OLIVER:

19 Q. M. K. I

20 R-289.

21 D ?

22 A. , I .

23 Q. ?

24 A. I

25 M S C

1 Q. J  
 2 IBM S ?  
 3 A. A 80 1990, IBM

4 S  
 5  
 6 JEDEC

7 Q. N M . M  
 8 ?

9 A.  
 10 S IBM  
 11 IBM B J M  
 12 J

13  
 14 Q. N , I M . M  
 15 M . M

16 L  
 17  
 18 "S DRAM." D ?

19 A.  
 20 Q. M . M  
 21 S DRAM?

22 A. M  
 23 JEDEC S DRAM.

24 Q. A  
 25 DRAM?

1 A.

2 Q. A M . M J

3 ?

4 A. I R

5 IBM B

6 I

7 DRAM I

8 R

9 Q. N

10 O "P "C ." D J

11 ?

12 A.

13 Q. M . M J

14 ?

15 A.

16 " .

17 Q. I I

18 S DRAM

19 C . D J ?

20 A.

21 Q. A "2

22 " .

23 D J ?

24 A.

25 Q. M . M J

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?

MR. PERRY: D

? I

MR. OLIVER: I

MR. OLIVER:

Q. A

M. M

A. I

M. M

DRAM JEDEC

Q. A

M. M

JEDEC?

A.

DRAM

IBM B

H

I



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I

DRAM.

A

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JEDEC.

S I

Q. J

IBM?

A.

23

1992.

Q.

H

?

J DGE M G IRE:

B. MR. OLIVER:

Q.

M . K

C -1252

D

A.

I

F

R

I

1 A 23 I

2 I I

3

4 Q. L

5 I "H

6 C O C O

7 "IBM"

8 D ?

9 A. N. C

10 Q. I ( )?

11 A. .

12 Q. A

13 ?

14 A. O. I . I

15 I

16 Q. D

17 IBM?

18 A. , I .

19 Q. D

20 IBM?

21 A. .

22 Q. M. K , I

23

24 RDRAM

25 SDRAM .

1 D J ?

2 A. .

3 Q. D J IBM

4 --

5 MR. PERR : R .

6 B MR. OLI ER:

7 Q. J . L .

8 D J

9 R A 1992

10 RDRAM SDRAM ?

11 A. .

12 Q. N ,

13

14 A 1992 ?

15 A. I R

16

17 Q. N , M . K J , R

18

19 A 1992?

20 MR. PERR : A

21 MR. OLI ER: I

22 R

23 MR. PERR : B

24 I

25

F R I .

1 J DGE M G IRE:

2 , M . O

3 B MR. OLI ER:

4 Q. I

5

6

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8 1992

9

10 A. A

11 RDRAM I

12 RIMM , M C

13 IBM

14

15

16 S J

17 I

18

19 Q. M :

20 RDRAM

21 SDRAM ,

22 1992

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25

F R I .



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JEDEC?

A.

B

DRAM

DRAM

JEDEC

I

RDRAM

SDRAM

JEDEC.

Q.

IBM

RDRAM

A.

Q.

A.

DRAM

IBM

-IBM

IBM

Q.

A.

DRAM

F R I

1 PC

2

3 PC. I

4

5

6 A

7

8

The image shows a musical score with eight staves, numbered 1 through 8 on the left. The notation is dense and includes various symbols such as notes, rests, and beams. Annotations are placed above the staves: 'PC' above staff 1, 'PC. I' above staff 3, and 'A' above staff 6. The notation appears to be a form of shorthand or a specific musical notation system, possibly related to a particular instrument or style. The overall layout is clean with clear line spacing between the staves.

1 A. , I .

2 Q. ?

3 A. NEC C

4 DRAM JEDEC

5

6 Q. ?

7 ?

8 A. , I .

9 Q. D ?

10 A. .

11 Q. A ?

12 A. .

13 Q. I I ?

14 59.

15

16

17 All."

18 D ?

19 A. .

20 Q. B ? NEC

21

22 NEC ?

23 A. I

24

25

F R I .



1 DRAM  
 2  
 3  
 4

5 Q. A I  
 6 83.

7 I I  
 8 82

9 A.

10 Q. D  
 11 82?

12 A.

13 Q. A ?

14 A.

15 DRAM JEDEC

16 Q. A I 83,

17 I I

18

19 "1M 2 8"

20 D ?

21 A.

22 Q. I

23

24

25 F R I

1 A. I  
 2 DRAM,  
 3  
 4  
 5

6 Q. I I 8  
 7 C-34.

8 A. .  
 9 Q. A I

10 18  
 11 "M S DRAM ."  
 12 D ?

13 A. .  
 14 Q. : "A  
 15 M  
 16 ."

17 D ?  
 18 A. .

19 Q. D  
 20 M DRAM 1992  
 21 ?

22 A. , I .  
 23 Q. C  
 24 M ?

25 A. . M  
 F R I .

1  
2 DRAM

3  
4 M

5 Q. B M M

6 S  
7 JEDEC  
8 SDRAM ?

9 MR. PERR : O  
10 J DGE M G IRE: S

11 B MR. OLI ER:

12 Q. M . K  
13 M 1992  
14 R ?

15 A. I  
16 I

17  
18 I  
19 R M

20  
21  
22 DRAM S

23 R  
24

25 DRAM.



1  
2 M ?

3 A .

4 Q. A

5 P C ,

6

7 M ?

8 A .

9 Q. A I

10

11 C , : "P

12 ? (M /R )."

13 D ?

14 A . , I .

15 Q. C

16

17 A. I

18

19 S

20 I JEDEC

21 M R I

22

23

24 M

25 R I

IBM

F R I .

1 M Ie  
 2  
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 4 Q.  
 5 M ?  
 6 A. JEDEC.  
 7 Q. A  
 8  
 9  
 10 ?

11 MR. PERR : M J. H e  
 12 H  
 13 "

14 MR. OLIER: H I  
 15  
 16 J DGE M G IRE: A  
 17 B MR. OLIER:

18 Q. C J  
 19 R ?  
 20 A. I R  
 21 IBM B A I

22  
 23  
 24 DRAM JEDEC  
 25

F R I  
 M



1 F  
2 CAS  
3 N  
4 1991 1996,  
5 CAS  
6 A. I  
7 Q.  
8 ?  
9 A. P CAS  
10 DRAM.  
11 Q. A 1992



1 DRAM. CAS

2

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4 CAS

5 CAS

6 CAS

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8

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10 A

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12

13

14 S

15

16

17 CAS CAS

18

19

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21 JEDEC

22

23 CAS

24 Q.

25 1991 1996,

1 [Musical notation]

2 [Musical notation] " ?

3 A. [Musical notation]

4 Q. [Musical notation]

5 [Musical notation] ?

6 A. [Musical notation]

7 [Musical notation] CAS

8 [Musical notation]

9 [Musical notation]

10 [Musical notation]

11 [Musical notation]

12 [Musical notation]

13 [Musical notation]

14 [Musical notation]

15 [Musical notation]

16 [Musical notation] PC

17 [Musical notation]

18 [Musical notation]

19 [Musical notation] S

20 [Musical notation]

21 [Musical notation]

22 [Musical notation]

23 [Musical notation] O

24 [Musical notation]

25 [Musical notation] O

1  
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3 Q. D 1992  
4 42.3  
5 ?

6 A.  
7 Q. D 1992  
8 42.3  
9 ?

10 A. I  
11  
12

13 Q. B 1992  
14  
15 CAS

16 ?  
17 A.  
18

19  
20 Q. A  
21  
22 ?

23 A.  
24  
25 A.

1  
2 Q.  
3  
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5  
6  
7 ?  
8 MR. PERRY : O  
9 JUDGE MCGUIRE : S  
10 BY MR. OLLIVER:  
11 Q. M. K  
12  
13  
14 ?  
15 A. I  
16  
17  
18 I  
19  
20  
21  
22  
23 A  
24  
25

1



DRAM

1        267 , 0 . M ."

2        D ?

3        A. .

4        Q. N , ?

5        ?

6        A. .

7        Q. A ?

8        ?

9        A. .

10        Q. C ?



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DRAME

MR. OLIVER: M... ?

JUDGE MCGUIRE:

MR. OLIVER:

Q. M. K... I... ?

J-16

D... ?

A. .

Q. ... ?

A. ... JC-42.3

M... 1993.

Q. ... ?

A. .

Q. I I... 5

J-16.

A. I... 8.

I... DRAME... D... ?

A. .

Q. ... "M. K... ?

14 DRAME... ."

F R I





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Q. N

A. Be

Q. N

42.3

A. N .

Q. A

42.3

A. N .

Q. M . K

I

1993.

C-54. I

H

J DGE M G IRE: G

(P .)

F R I .

1 THE I 'NESS: 2.

2 B. MR. OLI ER:

3 Q. M . K ,

4 G -54 ?

5 A. .

6 Q. I I 8

7 N , 8

8

9 M 1993 ?

10 A. .

11 Q. I

12

13 E I

14

15 42.3

16 I I

17 JCB-93-13,

18 2M 8/ 9 S DRAM JC-42.3 376.1.

19 D ?

20 A. .

21 Q. I

22 42.3 ?

23 A. .

24 Q. A I

25 13 8,

F R I

1  
 2 10  
 3  
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 5 42.3  
 6 A.  
 7 DRAM.  
 8 Q. N 1993  
 9  
 10 A.  
 11 Q. B 42.3  
 12  
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 14 D  
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 16  
 17 A.  
 18  
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 20 Q. S  
 21 42.3  
 22  
 23 A. N  
 24  
 25 Q. N

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A. . . . . ?

Q. I . . . . . 1993  
42.3 . . . . .  
1993 . . . . . ?

MR. PERR : I . . . . .  
I . . . . .  
J DGE M/G IRE: S . . . . .

MR. OLIER:

Q. M . K . . . . .  
-- I . . . . . H . . . . . L . . . . .  
M . K . . . . .  
IBM . . . . .  
CAS . . . . .  
SDRAM . . . . .  
F . . . . . IBM . . . . .  
CAS . . . . .  
SDRAM . . . . . ?

A. . . . . I . . . . .

Q. . . . . M  
: . . . . .  
?

1 A. I

2 Q. I

3 ?

4 A. I

5 IBM

6

7 Q. H

8 CAS

9 ?

10 A.

11 Q. N

12 R

13

14 CAS SDRAM

15 ?

16 A. I 10 A. I 6 . I S

1 CAS

1

2 AS S ?

2 1 AS S ?

2 A. I 10 23. I 6 .

24 1 M

2 M PCCAS 5 , CAS 3.03

1 DRAM

2 O I I

3 \$300-400 PC, I

4 \$10 30, 40, 50 DRAM PC.

5 Q. N, M. K

6

7 CAS SDRAM

8 R

9

10

11 ?

12 MR. PERR: O

13

14 MR. OLIVER: H

15 52

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23

24 MR. PERR: H

25

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MR. OLIVER: H

JUDGE MCGUIRE: A O I

MR. OLIVER: N, I H

JUDGE MCGUIRE: I

MR. OLIVER: H

C

( )

"QUESTION: N, M. K

CAS

SDRAM

F R I



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"

'HE I 'NESS: I

I I

G I

O

RAND, I

MR. OLIER:

Q. I

?

MR. PERR: S H

J DGE M G IRE: C

'HE I 'NESS: RAND

MR. OLIER:

Q.

RAND ?

MR. PERR: H

J DGE M G IRE: S

1 B. MR. OLIVER:

2 Q. ...  
3 ...  
4 ... ?

5 A. ...  
6 ... "  
7 ...  
8 ...  
9 ...

10 ... RAND ... RAND  
11 ... RAND

12 ...  
13 ...  
14 MR. OLIVER: H

15 ...  
16 JUDGE M L K0 16 (11



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JUDGE MCGUIRE: S... M. K...

MR. OLIVER: H...

MR. PERRY:

MR. OLIVER: C...

MR. OLIVER:

Q. M. K... I...

JC-21

D... ?

A. .

Q. ... ?

A. I... JC-42.3

1994.

Q. ... ?

A. .

Q. I I... 86.

A. .

Q. D... ?

86?

A. .

F... R... I...

1 Q. A ?

2 A. NEC

3

4 DRAM.

5 Q. NEC

6 ?

7 A. .

8 Q. D ?

9 A. .

10 Q. D

11 ?

12 A. .

13 Q. I I

14 87

15 A. .

16 Q. I

17

18 "PLL ) ."

19 D ?

20 A. .

21 Q. C

22 NEC ?

23 A. DRAM

24

25

F R I

1  
2  
3  
4 SDRAM.  
5 PLL  
6  
7  
8 Q. I I 91.  
9 A. .  
10 Q. A

1 Q. N JEDEC

2

3 NEG JEDEC ?

4 A.

5 Q. B JEDEC

6

7

8 PLL JEDEC

9 ?

10 A.

11 MR. PERR : O

12 MR. OLIER : H

13

14 J DGE M G IRE : O

15

16 'HE I 'NESS :

17 MR. OLIER : H ?

18 J DGE M G IRE :

19 B MR. OLIER :

20 Q. M . K , I

21 J -26

22 D ?

23 A.

1 ~~EM~~ 1996.

2 Q. ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ ?

3 A. ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

4 Q. I I ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ 111

5 ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

6 A. ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

7 Q. A ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

8 "M ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ E ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

9 "64 M ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ S ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ L SDRAM."

10 D ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ ?

11 A. ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

12 Q. D ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ J~~1~~-26?

13 A. ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

14 Q. ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ J~~1~~-26?

15 A. M ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ JEDEC ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

16 ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

17 64- SDRAM ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ S ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ L

18 ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

19 Q. ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ M ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

20 ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ ?

21 A. ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

22 Q. A ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ ?

23 A. ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

24 Q. D ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ .

25 ?

F R I .



1 A. .  
 2 Q. A ,  
 3 S L ?  
 4 A. S L I  
 5  
 6 I S L  
 7 I S L  
 8 I S L  
 9 I  
 10 DRAM JEDEC.  
 11 Q. D S L  
 12 M  
 13 JEDEC ?  
 14 A. S  
 15 Q. D  
 16 S L  
 17 ?  
 18 A. I  
 19 Q. A I  
 20  
 21  
 22 R ?  
 23 A. I  
 24 92.  
 25 Q. N S L  
 E R I . 111

1 JEDEC

2

3 A. I

4 Q. S DDR

5

6

7 A. I

8 Q. O 111 J -26 I

9

10 "704."

11 D ?

12 A. , I

13 Q. ,

14 ?

15 A.

16

17 Q. I I

18 112.

19 A.

20 Q. A S N

21 D "R

22

23 " "

24 D ?

25 A.



1 P. I

2

3 I

4 D ?

5 A.

6 Q. N ,

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8 A. P. JEDEC

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13 Q. D

14

15 A. I

16 S L

17 H

18

19 S L

20 I

21 I S L

22 MR. OLIVER: H ?

23 JUDGE MCGIRE:

24 B. MR. OLIVER:

25 Q. M. K , I

F R I

1 Jy -27

2 D ?

3 A.

4 Q. ?

5 A. JC-42.3

6 S 1995.

7 Q. ?

8 A.

9 Q. I I ?

10 4 Jy -27

11 P P

12 D ?

13 A.

14 Q. I "P" ?

15 B "S L R L

16 R

17 ( C )."

18 D ?

19 A.

20 Q. A I ?

21 26.

22

23 "A" C"

24 "E" S " D ?

25 A.

F R I

1 Q. N , J

2 J-27?

3 A. .

4 Q. D

5

6 R M 1995

7 JC-42.3 ?

8 A. .

9 I M

10 R C

11 R

12

13 S L M

14

15

16 S L DRAM

17

18 Q. O 26 J-27, I

19

20 I "A R

21

22 S L "

23 D ?

24 A. .

25 Q. N R I

F R I

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4 A. I

5 Q. ?

6 A. A

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14 RAND

15

16 S

17 I I

18 Q. D JEDEC S L

19 ?

20 A. N

21 MR. OLIVER: H ?

22 J DGE M G IRE:

23 B. MR. OLIVER:

24 Q. M . K , I

25 J -31

F R I

1 D ?

2 A. .

3 Q. ?

4 A. I JC-42.3

5 M 1996.

6 Q. ?

7 A. .

8 Q. I I 68.

9 A. .

10 Q. A I

11 68 72 .

12 (P .)

13 A. .

14 Q. D ? 68 72 J-31?

15 A. .

16 Q. ?

17 A. ?

18 S ?

19 SDRAM.

20 Q. ? S

21 ?

22 A. .

23 Q. D ?

24 A. .

25 Q. D ?

F R I .





1  
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4 Q. I . I

5  
6 A. .

7 Q. N , M . K  
8  
9 JEDEC

10 ?  
11 A. .

12 Q. N ,  
13 JEDEC

14  
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18 ?  
19 A. .

20 MR. OLIVER: ?

21 JUDGE MCGUIRE: .

22 B. MR. OLIVER:

23 Q. M . K , I

24 C-2388

25 D ?

F R I .



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JEDEC

D

A.

Q. A

DDR

L

DDR."

D

A.

Q. A

JEDEC

1996. D

A.

Q. A

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1996

D

A.

Q. M. K

JEDEC,

JEDEC

JEDEC DDR SDRAM

A. I

1988

IBM

1990

1991

1991. I

F R I

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3 DRAM.  
4 S  
5 1988  
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9 DDR SDRAM.  
10 Q. I  
11  
12 1992  
13 ?  
14 A. IBM  
15  
16 I  
17 "  
18 Q. A  
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20 ?  
21 A. A I 95, 96,  
22 97  
23 Q. M. K  
24 "DDR SDRAM" 1996  
25 DDR SDRAM

F R I

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2        A. N

3        IBM

5        Q. M . K

6        JEDEC

9        D        1996?

10       A. I

11       C I

12       (        :)

13       "Q ES 'ION: M . K

14       JEDEC

18       D        1996?"

19       'HE I 'NESS: N . I

21       SDRAM

22       1990, 1991, 1992

24       90

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DDR.  
 B. MR. OLIVER:  
 Q. M. K. JEDEC  
 PLL DLL  
 D 1996?  
 A. N. 95,  
 94. I  
 95.  
 MR. OLIVER: H ?  
 J DGE M G IRE:  
 B. MR. OLIVER:  
 Q. M. K. C-2387  
 D ?  
 A. , I .  
 Q. ?  
 A. I IBM  
 1998.  
 Q. ?  
 A. M. K.

1 256- DRAM

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4 DRAM.

5 Q. M. K. I

6 : "O IMD 256M

7 DRAM '2

8 1998. F

9 2Q98."

10 D ?

11 A.

12 Q. ?

13 ?

14 A. F

15 , '2 IBM

16 , I

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MR. PERR :

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MR. OLI ER:

Q. M . K

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JEDEC.

MR. PERR :

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F R I

1 J DGE M G IRE: A , M . O ?

2 MR. OLI ER: H , I

3 I

4 J DGE M G IRE: A . G

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JEDEC DDR SDRAM

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Q. M. K. I

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A. N .

Q.

JEDEC,

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MR. OLIVER:

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JUDGE MCGUIRE:

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MR. PERRY:

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J DGE M G IRE:

MR. OLI ER:

J DGE M G IRE:

12:03

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A F ' E R N O O N S E S S I O N

(1:15 . .)

J DGE M G IRE: C , I

[Illegible text with heavy noise and artifacts]

1 I  
 2 I  
 3 ?  
 4 MR. S 'ONE: H I  
 5 I  
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 7 O  
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4 J DGE M G IRE: A I  
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14 I  
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17 A  
18 I  
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20 MR. S 'ONE: S I. S  
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F R I

1 J DGE M G IRE: I

2 MR. S 'ONE:

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5 I

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10 I

11 I

12 O

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14 J DGE M G IRE: I

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16 I

17 I

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19 1 I

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 17 MR. S'ONE: A I -- I  
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12 I  
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J DGE M G IRE: A

MR. S 'ONE:

J DGE M G IRE: A

MR. S 'ONE: O

MR. OLI ER:

MR. S 'ONE: I

J DGE M G IRE:

F R I

1 1400-1500

2 MR. S 'ONE:

3 . A I

4 . A

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6 J DGE M G IRE: N

7 C.

8 MR. S 'ONE: R . A I

9

10 J DGE M G IRE: S

11

12 MR. S 'ONE: H I -- I

13

14 J DGE M G IRE: .

15 MR. S 'ONE: A I

16

17 J DGE M G IRE: I

18

19

20 S

21 M . O ?

22 MR. OLI ER: N H

23

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25 F R I .

1 J DGE M G IRE: D

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3 ?

4 MR. S 'ONE: I -- I I

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6 . I --

7 ?

8 J DGE M G IRE: B

9 MR. S 'ONE: L

10 H

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12 E B

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15 A E C

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18 J DGE M G IRE: N

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20 ?

21 MR. S 'ONE: I

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23 J DGE M G IRE:

24

25 A

F R I

1                    B            C, M . O            ?

2                    MR. OLI ER:   N

3                    B

4                    C.

5                    J DGE M G IRE:   N , I

6                    A?

7                    MR. OLI ER:   H . C

8

9                    A

10

11                    J DGE M G IRE:   A , M . S            ?

12                    MR. S 'ONE:   N            H .

13                    J DGE M G IRE:   I

14

15                    N

16                    ? D

17                    ?

18                    MR. S 'ONE:   I

19

20                    J DGE M G IRE:   D            J -A,

21                    J -B            J -C?

22                    MR. OLI ER:   A, B            C.

23                    J DGE M G IRE:   J -A

24                    J -B

25                    J -C

F            R            I

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MR. S 'ONE: H .

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H E M G 7 NE: J E N A, B

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9H E M G 7 NE: S

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1 J DGE M G IRE: O ?

2 MR. PERR :

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6 J DGE M G IRE: A

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(C E N 1252

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MR. OLIER: H

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J DGE M G IRE: M . P

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MR. PERR : H , I

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5 I M . O

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J DGE M G IRE: .

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CROSS-EXAMINATION

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MR. PERR :

22

Q. M . K ?

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A. I .

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Q. M . O

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F R I .

1 1991 1996 . D

2 ?

3 A. , I .

4 Q. A 1 e e e I

5 e e e I 1 e

6 e e e e e

7 e . D 1 ?

8 A. .

9 Q. A e 1 1 1 e

10 e e e e e e e

11 e 1 e 1 e , e e e 1

12 1 e e e e

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14 e . D 1 e e 1 ?

15 A. .

16 Q. e e JEDEC 1

17 e e e JEDEC

18 ?

19 A. N .

20 Q. S 1 e e e e

21 e e e e e e e

1 A. A I

2 Q. A IBM

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4 ?

5 A. I

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7 Q. S IBM

8 90 ; ?

9 A.

10 Q. A M

11 JEDEC JEDEC

12

13 50 1993 1996?

14 A. I -- I

15 Q. N JEDEC

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17 DRAM ?

18 A.

19 Q. A JEDEC

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1 A. I  
2 I  
3 .

4 Q. A " " ?  
5 " ?

6 A. .

7 Q. A JEDEC  
8 " "  
9 ; ?

10 A. C .

11 Q. B JEDEC  
12 ;  
13 ?

14 A. .

15 Q.   
16 .

17 N , 1990  
18 IBM  
19 IBM  
20 ; ?

21 A. .

22 Q. L  
23 I R-653.  
24 B H , I  
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J DGE M G IRE: 2-7 .

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Q. L

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A. I 808. I 8080.

Q. I 128080.

A. I

Q. A IBM I

P G D ?

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Q. F

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1991

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A. I

Q. A M. H

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A. I

Q. A 128115,

129

128115, M. K ?

A. I

Q. A IBM

F R I

1 Q. D J ?

2 A. .

3 Q. J 14, 1993; ?

4 A. .

5 Q. Ie -- Ie J

6 811 -- I J --

7 8122.

8 A. , Ie 8122.

9 Q. A J 1.5, IBM

10 ?

11 A. .

12 Q. A

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14 A J " --

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16 ?

17 A. , I .

18 Q. Ie , "C

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21 D J ?

22 A. .

23 Q. A J IBM

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2 A. I [unclear] [unclear] [unclear]

3 [unclear] [unclear] [unclear] [unclear]

4 Q. A [unclear] [unclear] [unclear]

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8 A. I [unclear] [unclear] [unclear]

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11 Q. [unclear] [unclear] [unclear] [unclear] 1.6 [unclear] [unclear]

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14 [unclear] (P [unclear] [unclear] [unclear] .)

15 A. [unclear] [unclear] .

16 Q. A [unclear] [unclear] [unclear] [unclear] [unclear] [unclear]

17 [unclear] 8123 [unclear] [unclear] , "IBM [unclear] [unclear]

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24 A. [unclear] [unclear] .

25 Q. A [unclear] [unclear] [unclear] [unclear] [unclear] IBM

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1 IBM 1993,

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11 A. I -- I I

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1 IBM I

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6 Q.

7 JEDEC D 199

8 JEDEC IBM ?

9 A. I

10 JEDEC

11 JEDEC, I

12 Q. Re IBM ;

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14 A. I IBM I

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16 Q. S IBM , G K ,

17 , G K ,

18 JEDEC

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F R I

1 MR. OLIVER: O I ?  
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4 JUDGE MCGUIRE: S

5 MR. PERE:

6 Q. 24. I 138.

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8 A J

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10 D IBM ?

11 A. , I

12 Q. D IBM

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22 D ?

23 A. , I

24 Q. A JEDEC

25 D 1991, ?



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F R I

1 Q. I IBM

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10 D ?

11 A.

12 Q. S

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15 A.

16 Q. N D 1991 JEDEC

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18 A. I

19 Q. D

20 JEDEC ?

21 A. I

22 Q. N

23 I

24 1992 DRAM

25 IBM S ; ?

F R I



1 A. .

2 Q. A DRAM?  
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4 A. .

5 Q. " DRAM"?

6 A. N DRAM.

7 Q. A S  
8 S

9 JEDEC;

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11 A. .

12 Q. A M S  
13 JEDEC ; ?

14 A. .

15 Q. A  
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17 JEDEC.

18 A. I ?

19 Q. D ?

20 A. .

21 Q. .

22 N JEDEC  
23 , 1992; ?

24 A. I JEDEC

25 JEDEC

F R I .

1 M I  
 2 I  
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 6 A. I I  
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 9 I -- I  
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 11 I  
 12 JEDEC I  
 13 R  
 14 JEDEC JC-42  
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 19 JEDEC  
 20 Q. A ?  
 21 A.  
 22 Q. I -- I  
 23 I JEDEC 26,  
 24 2001 I 70 22.  
 25 J

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A. O , I  
F R I  
- (301) 870-8025



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3 A .

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9 Q. A M A 1992

10 IBM R ; ?

11 A .

52 Q. N

60 R Q.

7 R -240 .

1 R ?

2 A. y .

3 Q. A B

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8 D ?

9 A. y .

10 Q. : " B

11 B ;

12 DRAM

13 M "

14 C-H-A-D- -R-J-I-A-N -- " B

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16 D ?

17 A. y , I .

18 Q. A M IBM?

19 A. y .

20 Q. D B ?

21 A. H .

22 Q. B


23 ?

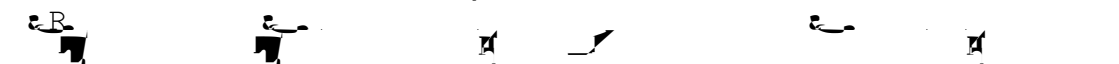
24 A. B DRAM

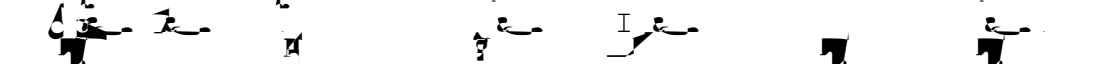
25 DRAM , I

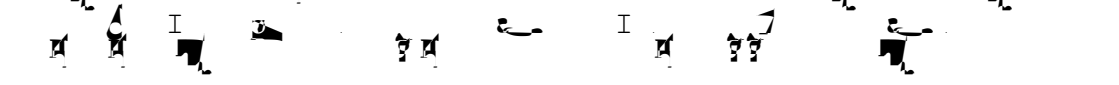
F R I



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MR. PERR: H I

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J DGE M G IRE: S

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1 A. .

2 Q. M . M IBM;

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4 A. .

5 Q. M . E ; ?

6 A. .

7 Q. A

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9 A. N . I I B G

10 D JC-42 . F

11 JC-42 . R C

12 A D .

13 Q.

14 . D

15 E M ?

16 A. I .

17 Q. L

18 M . M M . C

19 A 16, 1992, R -273.

20 M I?

21 J DGE M G IRE: G .

22 B MR. PERR :

23 Q. N , 1992

24 M . C ?

25 A. .

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Q. D  
16, 1992  
23 1992?  
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IBM, C-2355.

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5            M . F

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8            A . N , I .

9            Q . N ,

10            A 1992 ;

11            ?

12            A .

13            Q . A RDRAM;

14            ?

15            A .

16            Q .

17            .

18            D PLL?

19            A .

20            Q . A "PLL,"

21            "

22            D ?

23            A .

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F R I .

1 PLL ?

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12 Q. R-279.

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19 D . B M . C

20 A 92?

21 A.

22 Q. A 23

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25 A.

F R I

1 Q. A ...  
2 ... E 279?

3 A. ...

4 Q. ...  
5 A I ...

6 ... IBM  
7 ... ?

8 A. ...

9 Q. A ... "L ..."  
10 ...

11 ... " ..."  
12 D ... ?

13 A. ...

14 Q. A ... "N ..."  
15 ... " ... ?

16 A. A ...

17 Q. R ... A ...  
18 N ...

19 I ... " ..."  
20 ... DRAM ...

21 ...  
22 ... PC ...

23 D ... ?

24 A. ...

25 Q. ...

F R I



1 IBM A 1992?

2 A. I RDRAM

3 . I

4 PC . I

5 S I

6 . I

7 . I

8 . I

9 . I

10 PC

11 Q. D

12 IBM R ?

13 A. N . I

14 . I

15 . I . I EDEC

16 . I . I EDEC

1  
2 JEDEC

3  
4 D ?

5 A. , I .

6 Q. A IBM

7 E . D ?

8 A. .

9 Q. A :

10 "I B  
11 B " --

12 IBM B ; ?

13 A. .

14 Q. --" SDRAM

15 ."

16 D ?

17 A. .

18 Q. A

20 18 N Q --" 12 . A .

2 "I I

2 "I D A 5 1992

2 .

24 17 . AA. .

1 E 279.

2 A

3 I C D

4 ?

5 P 4.

6 A. I

7 Q. A "I R ." D

8 ?

9 A.

10 Q. D

11 1992 I R

12 ?

13 A.

14 Q. A "P

15 I

16 586/686 R

17 PC/ ."

18 D ?

19 A.

20 Q. A IBM, ?

21 A. N

22 Q. A R

23 ; ?

24 A. N

25 Q. N R IBM

F R I

1 IBM ;  
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3 A. I  
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5 Q. ?

6 A. A I  
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11 Q. A IBM

12 IBM JEDEC ;

13 ?

14 MR. OLIVER: O H C I

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17 B. MR. PERRY :

18 Q. .

19 IBM

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21 JEDEC

22 , IBM

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24 A. I IBM

25 " , "

F R I .

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3 Q. G M A 92

4 M ; ?

5 A. .

6 Q. A R ; ?

7 A. .

8 Q. A

9 R A 23 ; ?

10 A. I I

11 R I

12 R

13 Q.

14 ?

15 A. , I

16 Q.

17 ; ?

I A 23 ;

1 Q. N , I  
 2 I  
 3 I  
 4 I  
 5 R -286-A. A I  
 6 I  
 7 I

8 B  
 9  
 10 M . M 1992?

11 A. L

12 Q. S

13 (P .)

14 A. .

15 Q. N , 30, 1992,  
 16 D . P , P-E-I-S-L,  
 17 M ?

18 A. .

19 Q. I ?

20 A. .

21 Q. A IBM  
 22 ?

23 A. N .

24 Q. I IBM?

25 A. . S

1 Q. Q. A. B.

2 IBM ?

3 A. I B.

4 Q. D B. ?

5 A. H .

6 Q. H . B. ?

7 A. .

8 Q. A M . M "IBM

9 D B. "

10 D ?

11 A. .

12 Q. I M . M

13 A 30 ?

14 A. N .

15 Q. A B.

16 S. SD 10

17 SDRAM B.

18 . "

19 D ?

20 A. .

21 Q. I M . M

22 A 30 ?

23 A. N . I

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25 Q. D ?

F R I .

1 A. I . . . I . . .

2 . . .

3 Q. A . . . "F . . . , IBM

4 . . .

5 . . . ."

6 D ?

7 A. . .

8 Q. I . . . ?

9 A. . . I . . .

10 IBM

11 DRAM

12 Q. D ?

13 . . . R . . . ?

14 . . . ?

15 A. A . . . ? N . . . I . . . ?

16 . . . ?

17 Q. I . . . 279, . . . I . . .

18 . . .

19 I . . . , "L . . . " -- . . . 279 --

20 "R . . . : L . . .

21 . . . -- . . .

22 . . . R . . . ."

23 D ?

24 A. . . B . . .

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5 A.  
6 Q.  
7 A. Be  
8 Q. N , 92  
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11 A.  
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13 IBM F  
14 Q. H PLL ? D  
15  
16 A. I PLL  
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18 PLL  
19 I DRAM  
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21 Q. S 1992  
22 R IP PLL ; ?  
23 A. N I  
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25 JEDEC.

1 Q. I IBM PLL

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3 I IBM PLL

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7 A. I

8 I PLL

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10 Q. H IBM PLL ?

11 A. I

12 I

13 Q. L

14 PLL

15 A 1992,

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17 ?

18 A. C DRAM,

19 Q. A

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21 DLL?

22 A. B I

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25 Q. A

F R I

1 RDRAM DLL PLL ; ?

2 A. .

3 Q. N , ; ?

4 A. 30, 1992; ?

5 A. .

6 Q. A , , 1, 1992, ,

7 IBM ; ?

8 J. ; ?

9 A. I ; I

10 J ;

11 Q. A ;

12 MR. EBER: E ; H .

13 He ; I IBM.

14 J DGE M G IRE: C ;

15 MR. EBER: He .

16 J DGE M G IRE: A ; IBM?

17 MR. EBER: N . ;

18 He & H ; IBM ;

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20 A ;

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22 MR. PERR: I ;

23 I ;

24 MR. EBER: E . ;

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J DGE M G IRE:

MR. EBER:

MR. PERR:

J DGE M G IRE: R

MR. PERR:

J DGE M G IRE: B

MR. EBER:

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MR. PERR:

MR. EBER:

MR. PERR:

MR. PERR:

Q.

A-R - -B-I.

F R I

1 A IBM?

2 A.

3 Q. ?

4 A. I

5 Q. N , 1, 1992.

6 A N O

7 JEDEC ?

8 A.

9 Q. 7 8, 1992; ?

10 A.

11 Q. A M . C ;

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13 A.

14 Q. A 1992

15 M . C

16 DRAM JEDEC; ?

17 A.

18 Q. A ;

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20 A.

21 Q. A M . C

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23 JEDEC ;

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25 A. H

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1 Q. ...

2 C -355.

3 I ...

4 ... I ...

5 A. ...

6 Q. N ...

7 M . MG ANSI

8 ANSI . D

9 ?

10 A. .

11 Q. A I 2,

12 I 3

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15 A. .

16 Q. I 6

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18 L 6.

19 A I

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22 G ... M . K

23 (P .)

24 A. .

F R I

1 Q. D J  
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9 A N  
 10 D J ?

11 A. , I .

12 Q. A J  
 13 1992 EIA  
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 16 ? R ?

17 A. " ."

18 Q. I " ."  
 19 M . C  
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23 A. I I

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25 Q. J



1 A. .

2 Q. I ?

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4 Q. " " ?

5 A. " " JC-42 JC-42

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11 JEDEG

12 Q. ?

13 A. I

14 Q. A ?

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16 Q. N , M . C

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20 Q. S

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1 Q. I  
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6 A.  
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 9 JEDEC  
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11 Q. A  
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14 A.

15 Q. D JEDEC 42.3  
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18 MR. OLIVER: O  
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20 B. MR. PERRY:

21 Q. A  
 22 JEDEC 42.3  
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24 A. N

25 Q. A

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2 A. N , I .

3 Q. N

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5 M . C

6 RDRAM

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8 MR. OLIVER: O H . C

9 0 ?

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2           A. N .

3           Q.           ?

4           A.           I           

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11          Q.   Be           

12          ;           ?

13          A.           .

14          Q.   S           

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17          JEDEC?

18          A.           .

19          Q.           

20          IBM    S           

21          92;           ?

22          A.           .

23          Q.   A           92 JEDEC

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25          30           ;           ?

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1 A. .

2 Q. H IBM

3 S ; ?

4 A. .

5 Q. A I I S

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8 A. , I .

9 Q. B S ; ?

10 A. .

11 Q. A

12 30 SDRAM

13 R ; ?

14 A. .

15 Q. A I

16 .

17 L R-303.

18 D , M . K ?

19 A. N . I

20 Q. N ,

21 I

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24 M 1992

25 JEDEC

F R I

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1 A. E I

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3 Q. N I

4 M K

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8 A. N .

9 Q. L

10 D M K

11 JEDEC

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14 A. I

15 Q. 92

16 I R-290.

17 M I?

18 J DGE M G IRE:

19 B MR. PERR :

20 Q. D ?

21 A. .

22 Q. A " I M K

23 A. .

24 Q. A

25 "JEDEC JC-42.3 N O 5-7-92." D

F R I



1 J ?

2 A. .

3 Q. Ie J

4 3 E 290. B

5 I J

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7 G I

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9 (P .)

10 A. J.

11 Q. N , J F J

12 " J

13 . " ?

14 D J ?

15 A. .

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 M 1992?  
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 Q. D M . S  
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 "A. I  
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2 Q. A M . S

3 M SDRAM B

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5 A. I

6 Q. D M . S

7 B ?

8 A. I

9 Q. D M

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11 A. I M

12 H --

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14 I M

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16 Q. I

17 M . M

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19 A. .

20 Q. I

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22 B

23 R -297 M . M

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25 I I H ?

F R I .

1 J DGE M G IRE: G

2 B MR. PERR :

3 Q. N  
4 G I  
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7 I 5,  
8 S P ?

9 A.

10 Q. I : "S P  
11 R M

12 N M  
13 R R  
14 D ?

15 A.

16 Q. D  
17 M S

18 M SDRAM  
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21 A. I

22 Q. A M 1992, ?

23 M S  
24 R  
25 SDRAM ?

F R I

1 A. I . . . . . -- I  
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3 SDRAM,

4 Q. I . . . . .  
5 2 I  
6 I . . . . . I  
7 13, 2001.

8 A . . . . . 401. A  
9 7  
10 (P . . . . .)

11 A. . . . .

12 Q. D . . . . . 2001 . . . . .  
13 M . M  
14 . . . . .  
15 SDRAM . . . . . 1992?

16 A. . . . . I . . . . .

17 Q. N . . . . .  
18 . . . . . ?

19 A. N . . . . .

20 Q. A . . . . . L . . . . .  
21 . . . . .  
22 . . . . . M . O . . . . .  
23 . . . . . JEDEC . . . . . 21-I. D . . . . .

24 ?

25 A. . . . .

1 Q. A E C-208.

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4 MR. CA :

5 MR. OLIVER: 208?

6 MR. PERE : F

7 MR. PERE :

8 Q. D E C-208?

9 A. .

10 Q. .

11 A .

12 21-H,

13 21-I; ?

14 A. .

15 Q. H ?

16 A. A I

17 Q. N , M . O

18 19 I

19 A 9.3, R

20 P P EIA ; ?

21 A. .

22 Q. A

23 "F

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F R I .

1 " ; 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25

2 A. .

3 Q. N , 1993

4 JEDEC 21-I, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25

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6 JEDEC EIA

7 ?

8 MR. OLIER: P

9 ?

10 MR. PERRY :

11 Q. A

12 A. I

13 Q. Ie " 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25

14 ; ?

15 A. .

16 Q. A 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25

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18 1993

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20 JEDEC ?

21 A. JC-42, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25

22 Q. O, I . Ie JC-42; 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25

23 ?

24 A. .

25 Q. I 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25

F R I .

1 JEDEC,

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3 A 21-I

4 1993, JEDEC 42.3

5 ?

6 MR. OLIVER: O H .

7

8 JUDGE MCGUIRE: O H --

9 M. P .

10 'HE I 'NESS:

11 B. MR. PERRY :

12 Q. H ?

13 A. O .

14 Q. ?

15 A. JC-16.

16 Q. B JC-42.3 JC-16,

17 JEDEC

18 21-I --

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21 MR. OLIVER: O H .

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23 JEDEC.

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25 JUDGE MCGUIRE:

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MR. PERR :

Q. N , JC-42.3

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Q. A JC-42.3?

1 A. A JC-16, J .

2 Q. A ;

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4 A. .

5 Q. A ;

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7 A. I .

8 Q. S

9 JC-16 42.3 ;

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11 A. .

12 Q. D ;

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14 A. . JEDEC

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18 Q. D ;

19 JC-42.3 ;

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21 A. I I .

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1 A. .

2 Q. A ?

3 J-18-16?

4 A. .

5 Q. A

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8 A. I ?

9 Q. I

10 A. I

11 Q. I

12 P. 17.

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MR. OLIER: H

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MR. PERR: H I

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J DGE M G IRE: L . I

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MR. PERR:

Q. O I

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 6 Q. O I  
 7 J DGE M G IRE: I . Ie  
 8 " " I ;  
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 11 MR. OLI ER: H  
 12 J DGE M G IRE: B I  
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 14 B MR. PERR :  
 15 Q. D I  
 16 JC-42  
 17 1992 M .  
 18 ?  
 19 A. I  
 20 Q. H  
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 23 A. N .  
 24 Q. I  
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1 A. N .

2 Q. L

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4 MR. OLIVER: H

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7 B. MR. PERE :

8 Q. M . K ?

9 A. I

10 Q. C ?

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13 N

14 42.3 42?

15 A. A 42 JC-16.

16 Q. S

17 JC-16

18 JC-16?

19 A. I JC-16.

20 Q. A JC-16

21 ?

22 A. I

23 Q. N JEDEC

24 JC-42.3

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1 A. N .

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4 Q. A

5 21-I; ?

6 A. .

7 Q.

8 L

9 C-46.

10 N

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12 I 9, 1993

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14 A. .

15 Q. L 9. -2

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1 EIA  
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3 A. B  
4 Q.

5 L I M  
6 25, 2001.

7 M  
8 25, 2001 97.

9 A  
10 14 17 97.

11 A. D I ?  
12 Q. O I 2 8I E0

1 A. , I .

2 Q. A ?

3 A. I

4 Q. L

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6 21-

7 21- H JEDEC,

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10 A. I ,

11 Q. S

12 EIA 1993,

13 21-I

14 JEDEC 21-I?

15 I ?

16 MR. OLIVER: P

17 H ?

18 JUDGE MCGUIRE: L

19 MR. PERRY:

20 Q. I

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23 A. I , I

24 EIA

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5 JEDEC?

6 A.

7 MR. PERR :

8 J DGE M G IRE: A L

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11 (R )

12 J DGE M G IRE: A

13 M . P .

14 B MR. PERR :

15 Q. EIA

16 D ?

17 A.

18 Q. L I C -204.

19 A 4

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16 Q. A

17 EIA

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21 D ?

22 A.

23 Q. A I

24 21-H, JEDEC 21-H ; ?

25 A. I

1 Q. A JEDEC

2 EIA . D ?

3 A.

4 Q. A I ;

5 21-H I ;

6 ?

7 A. N . I

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18 A. 26. I 26, 25.

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4 M I?

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6 Q. N ,  
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14 D 91,  
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8 Q. G , M . K .

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19 MR. OLI ER: H . ?

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1 Q. A [unclear] ?  
 2 A. [unclear] JC-42.3 [unclear] [unclear]  
 3 1991.

4 Q. A [unclear] ?  
 5 A. [unclear].

6 Q. I I [unclear] [unclear] [unclear] 3.  
 7 A I [unclear] -- I [unclear] [unclear] [unclear]

8 [unclear] 8 [unclear] [unclear]  
 9 I [unclear] P [unclear] [unclear].  
 10 D [unclear] ?

11 A. [unclear], I [unclear].

12 Q. I [unclear] -- [unclear] [unclear] [unclear]  
 13 [unclear] I [unclear] [unclear] [unclear] [unclear].

14 I [unclear] : " [unclear] [unclear] [unclear]  
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 23 [unclear] [unclear] [unclear] [unclear] [unclear] [unclear] [unclear]

24 D [unclear] ?  
 25 A. [unclear], I [unclear].



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4 Q. A JEDEC  
5 , J 1991, J-6.

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