Memory System Design

Part A

How many address lines does the memory system require? 22

How many data lines does the memory system require? 16

What kind of address decoder is required? none

Part B

How many address lines does the memory system require? 23
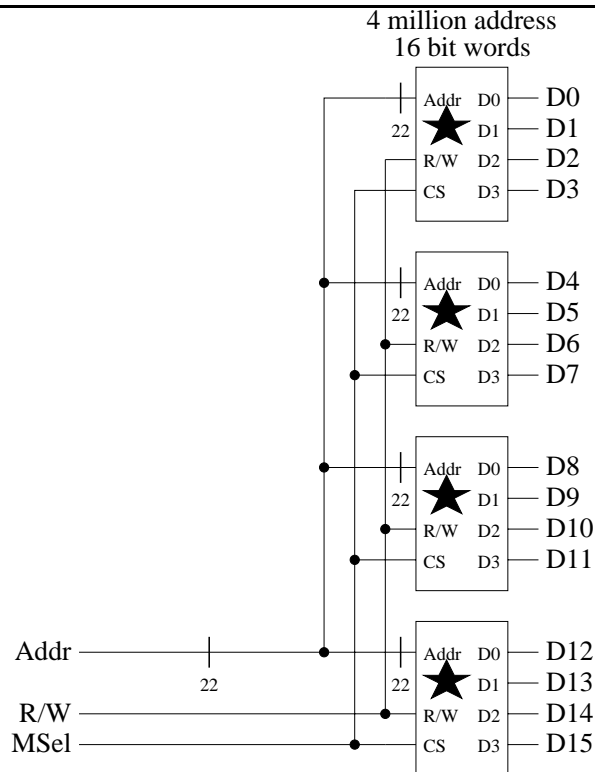
How many data lines does the memory system require? 8

Part C

How many address lines does the memory system require? 24

How many data lines does the memory system require? 4

What kind of address decoder is required? 2 to 4

Part D

4 million address
16 bit words

Addr	D0	— D0
22	D1	— D1
R/W	D2	— D2
CS	D3	— D3

Addr	D0	— D4
22	D1	— D5
R/W	D2	— D6
CS	D3	— D7

Addr	D0	— D8
22	D1	— D9
R/W	D2	— D10
CS	D3	— D11

Addr

22

Addr	D0	— D12
22	D1	— D13
R/W	D2	— D14
R/W | CS | D3 | — D15 |
MSel

8 million address
8 bit words

Addr D0
22
R/W D1
CS D2
D3

D0
D1
D2
D3

Addr D0
22
D1
R/W D2
CS D3

D4
D5
D6
D7

1 to 2
O0
S0
O1
EN

Addr D0
22
D1
R/W D2
CS D3

MSel

A22
Addr
A21:A0
23   22   22

R/W

Addr D0
D1
R/W D2
CS D3
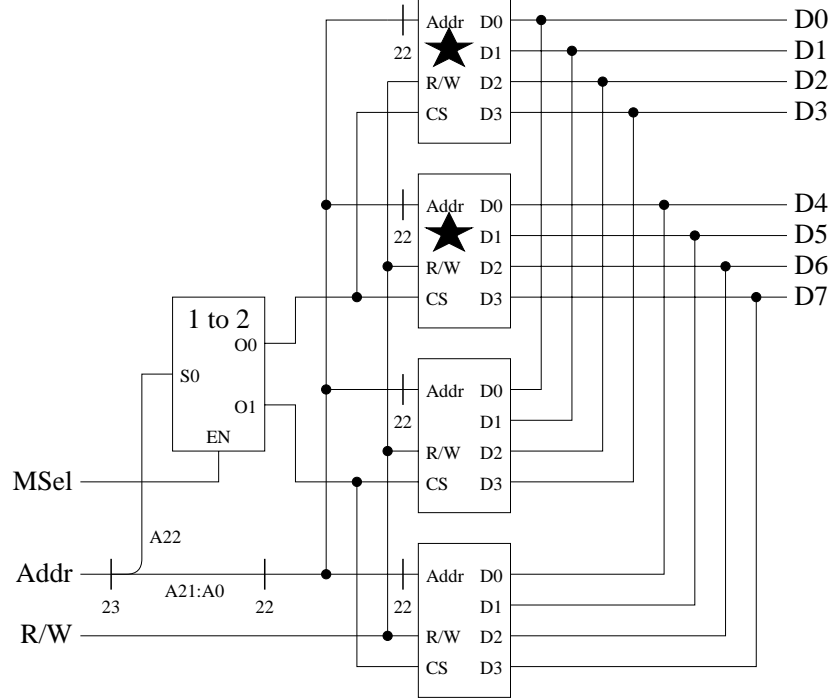
16 million address
4 bit words

Addr D0
22
R/W D1
CS D2
D3

D0
D1
D2
D3

Addr D0
22
D1
R/W D2
CS D3

2 to 4
O0
A22
S0 O1
A23
S1 O2
O3
EN

Addr D0
22
D1
R/W D2
CS D3

MSel

2
A23:A22

Addr
A21:A0
24   22   22

R/W

Addr D0
D1
R/W D2
CS D3