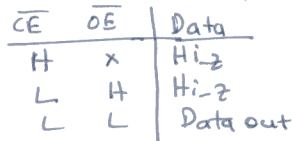
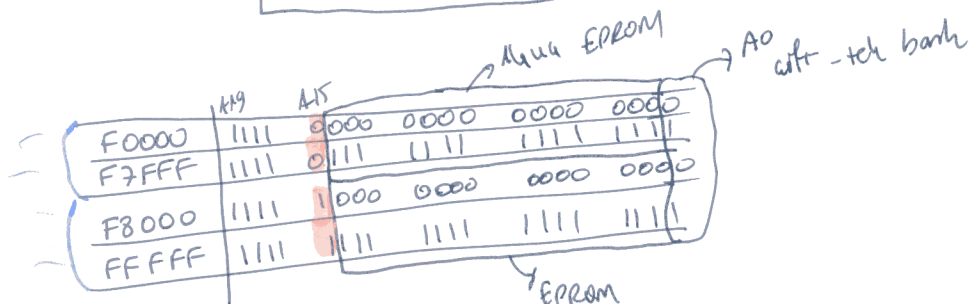
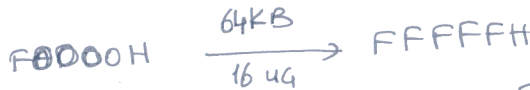


adresinden itibaren 64 KByte'lık bir alana EPROM yerleştirilir.



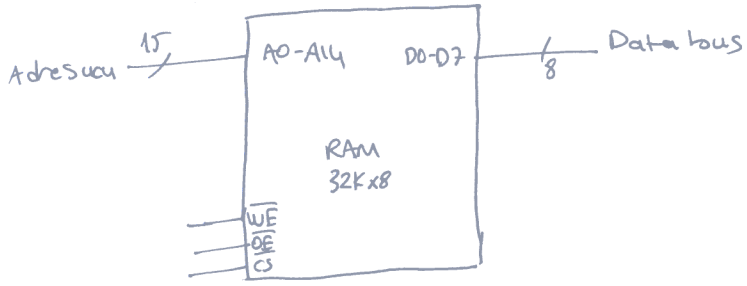
!! 8086

4 x (16K x 8)



Örnek 2 : 62256 RAM (32K x 8) : 15 adres ucu var.

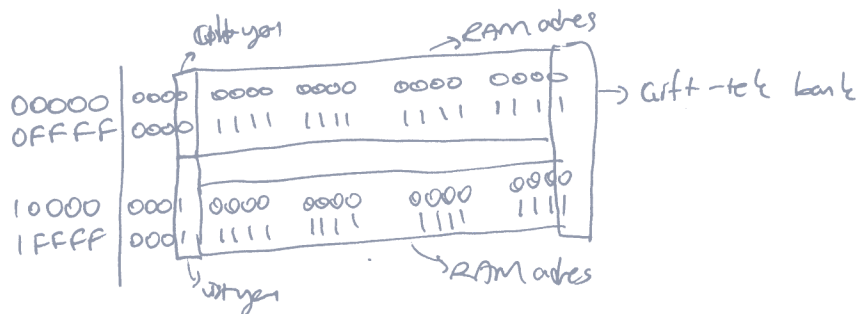
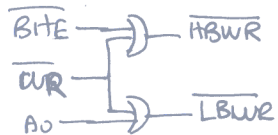
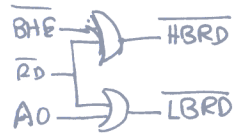
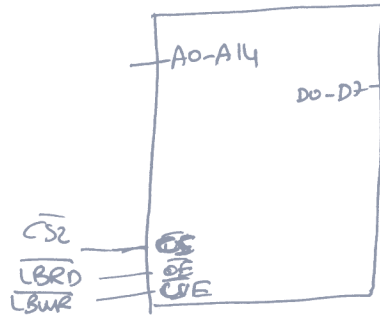
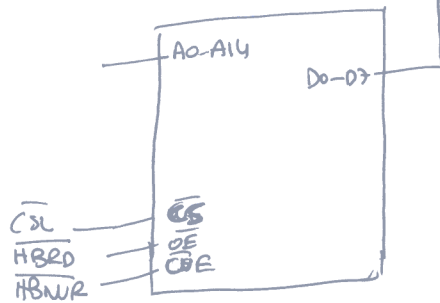
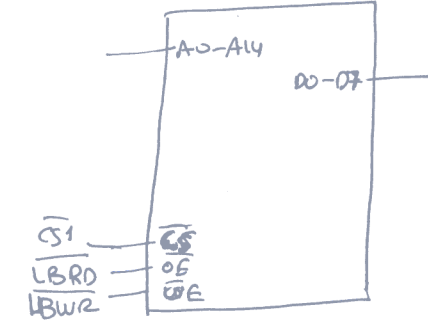
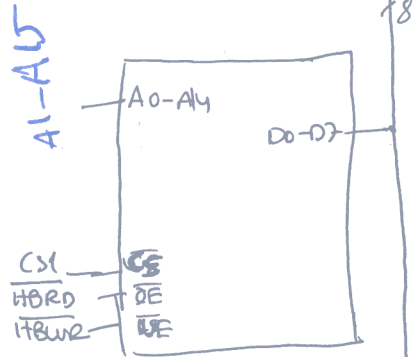
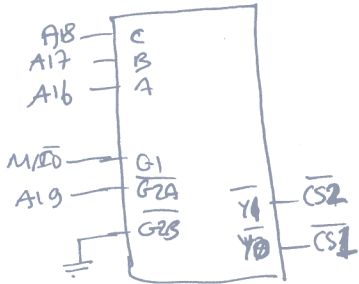
4 adet 62256 RAM kullanarak 00000H adresinden başlayarak 128K Byte'lık bir alana RAM yerleştirin.



!!! 8086 16 bit data interface yapılmalı, çift-tek bank uygulanmalı.

4 x (32K x 8) $\xrightarrow{128KB}$ (64K x 16)
 ↳ data yolu genişletme
 ↳ kapasite genişletme

00000H $\xrightarrow{2^{20} \text{ 128KB}}$ fffffH



Örnek 3:

80486 DX Mikroislemcisi (32bit veriyolu, 32 bit adres yolu)

bellet uzayında, islenel veriyolu 4 byte oldugundan bellet modülleri 4'turedir. (4'li dir)

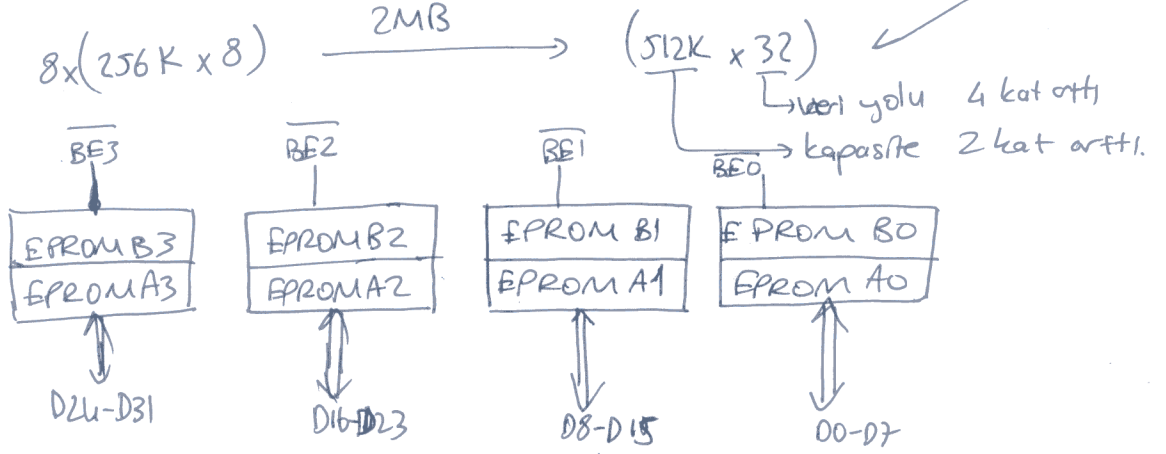
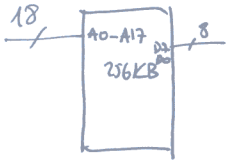
Her bir bellet modülünü seçmek için

BE3, BE2, BE1, BE0
(BE3, A0)
8086'da

uaları bulunmaktadir.

sonu: islemcisi 0H adresinden başlayarak 2MB'lik bellet alanına 256KB'lik memory modülleri (EPROM) yerleştirmek için gerekli donanımı çiziniz.

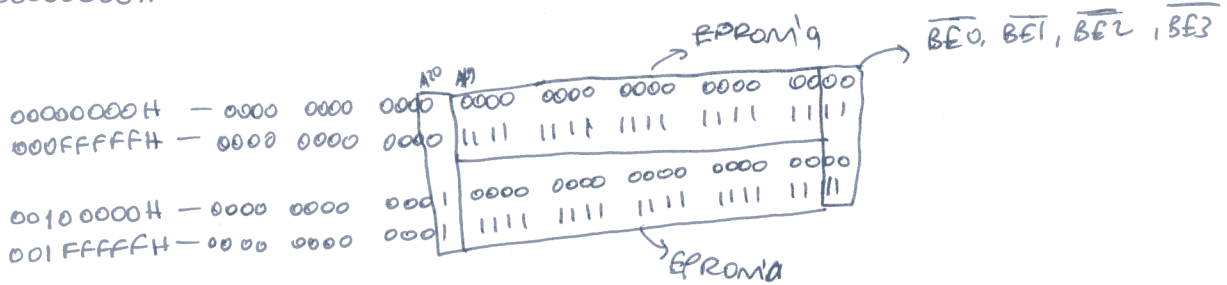
$$\frac{2MB}{256KB} = 8 \quad 8 \text{ adet EPROM gerekli}$$

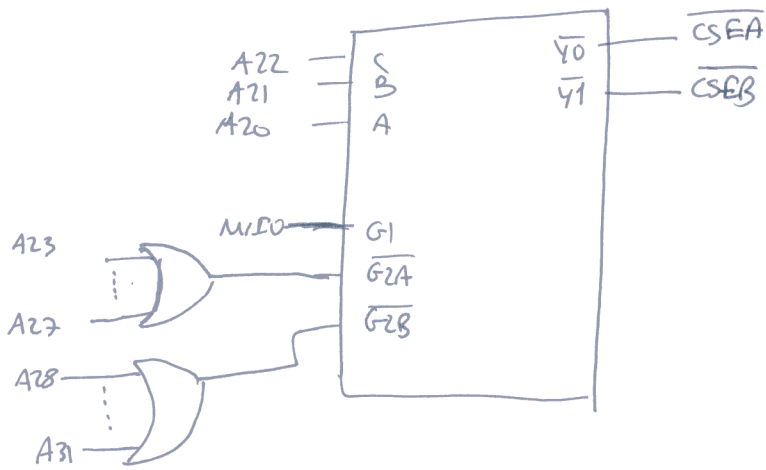
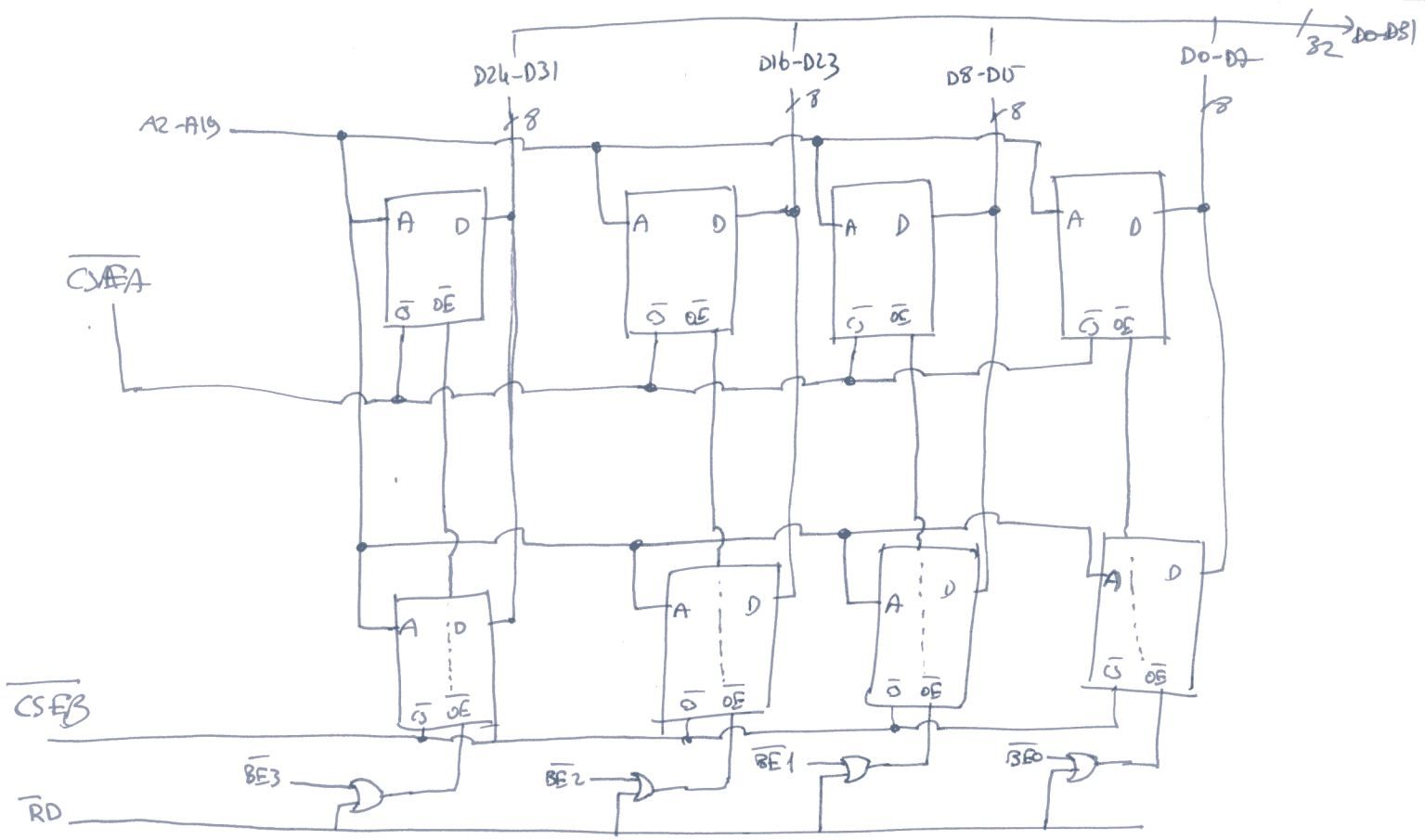


Assembly Instruction

8 bitlik → her bir baytın oluna
16 bitlik → 64 bitlik baytlardan oluna
32 bitlik → Tüm baytlardan oluna

$$00000000H \xrightarrow{2MB} 00FFFFFFH$$





- Aynı anda aynı kapasitedeki farklı adres aralıklarına yerleştirilmiş ROM ve RAM'ler
- Farklı kapasitede farklı adreslere yerleştirilmiş ROM ve RAM'ler (adres değerleri hıızalı)
- Adres değerleri hıızalı olmayan adres aralıklarına

Örnek : Separate Bank Decoder.

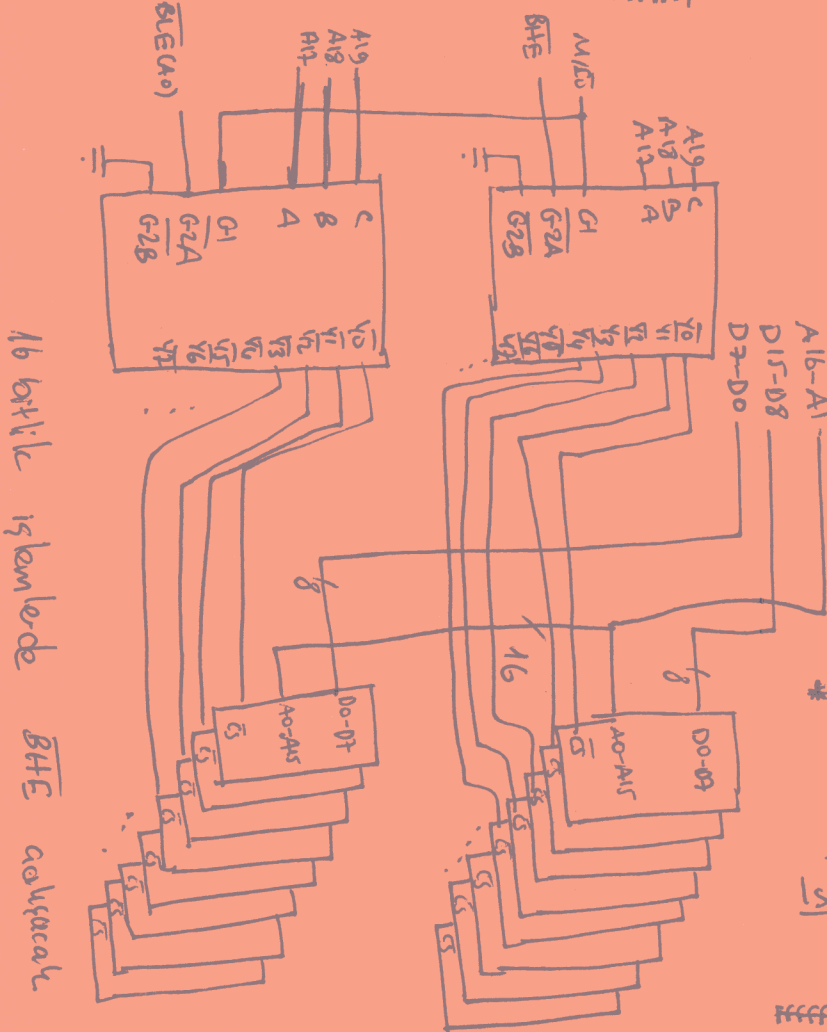
Memory birimlerim 64K'lık ve her biri 8 bit data genişliğine sahip.

(Bunlarla 16 bit'lik interface) gerçekleştirme.

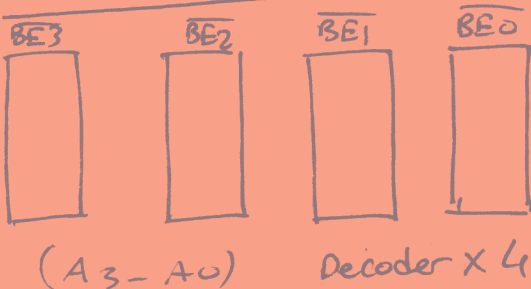
16 adet 64Kx8'lık birim kullanılacak.

$$64K \quad \begin{array}{|l} \text{FFFF} \\ \text{F000} \end{array} \Rightarrow 2^{16} \Rightarrow 16 \text{ adres ucu}$$

Adres Gözümleme \Rightarrow $\begin{array}{l} A_{15} \\ A_{14} \\ A_{13} \\ A_{12} \\ A_{11} \end{array}$ } $2^4 = 16$ farklı birim



32 Bit data interfacing



(8)

64 Bit data interfacing

$\overline{BE7} \dots \overline{BE0}$
 $A_{17} \dots A_0$

Adres Gözümleme ve * Memory interfacing telvar islenecek.

I/O instructions

* M/IO ucu \emptyset düştürülecek Instructionlar?

IN, INS, OUT, OUTS
8086'da yol
sonrasında ver
string vlu

IN AL, p8 OUT p8, AL
IN AX, p8 OUT p8, AX
IN EAX, p8 OUT p8, EAX
IN AL, DX OUT DX, AL
IN AX, DX OUT DX, AX
IN EAX, DX OUT DX, EAX

0 - 256 : IO addresses fixed
001H-FFFFH : stored in instruction

0100H-FFFFH : with DX variable addressing

↑
olasi durumlar

Günümüz PC'lerinde:

are decoded within 0000-03FFFH
0400-FFFFH : user

* MOV EAX, 13456H immediate addressing

Isolated - Memory Mapped I/O

Isolated : most common mapping

Memory map I/O map
Isolated



IN/OUT konutları ile
M/IO, WR, RD kullan

Memory mapped :



Full memory map yok
Herhangi hafızaya erişen
konut ile I/O
IORE, IOWC işlemi yok
daha az devre