Nama : Rifqi Alwan P

Nim : L200180008

Kelas : A

# Tugas Modul 3

1. Buatlah tabel pemetaan memori pada PC selengkap mungkin !

# Pemet[aan Langsung (Direct Mapping)](https://4.bp.blogspot.com/-CwhSVnv77mg/WBHl0XQWjuI/AAAAAAAABDo/bjK387GmLMoZJxZrUQ3GrEQPnYlitRkAwCLcB/s1600/Organisasi%2BK-Way%2BSet%2BAssociative%2BMapping.png)

Pemetaan la[ngsung adalah teknik yang paling sederhana, yaitu teknik ini](https://4.bp.blogspot.com/-CwhSVnv77mg/WBHl0XQWjuI/AAAAAAAABDo/bjK387GmLMoZJxZrUQ3GrEQPnYlitRkAwCLcB/s1600/Organisasi%2BK-Way%2BSet%2BAssociative%2BMapping.png) memetakan blok memor[i](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png) [utama hanya ke sebuah saluran cache saja. Jika](https://2.bp.blogspot.com/-PE1xrgRaBpA/WBHlZVWaTZI/AAAAAAAABDk/nEnnc8tz-sYM7rTMIxVInJ8zOqq_g-OEgCLcB/s1600/Contoh%2BPengalamatan%2BAssociative%2BMapping.png) suatu block [a](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)da di cache, maka tempa[tn](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)[ya sudah tertentu. Keuntungan dari](https://2.bp.blogspot.com/-PE1xrgRaBpA/WBHlZVWaTZI/AAAAAAAABDk/nEnnc8tz-sYM7rTMIxVInJ8zOqq_g-OEgCLcB/s1600/Contoh%2BPengalamatan%2BAssociative%2BMapping.png) direct mapping adalah [se](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)derhana dan murah. [Se](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)[dangkan kerugian dari](https://2.bp.blogspot.com/-PE1xrgRaBpA/WBHlZVWaTZI/AAAAAAAABDk/nEnnc8tz-sYM7rTMIxVInJ8zOqq_g-OEgCLcB/s1600/Contoh%2BPengalamatan%2BAssociative%2BMapping.png) direct mapping adalah suatu blok m[e](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)miliki lokasi yang [te](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)[tap (jika program](https://2.bp.blogspot.com/-PE1xrgRaBpA/WBHlZVWaTZI/AAAAAAAABDk/nEnnc8tz-sYM7rTMIxVInJ8zOqq_g-OEgCLcB/s1600/Contoh%2BPengalamatan%2BAssociative%2BMapping.png) mengakses 2 blok yang di map ke line y[an](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)g sama secara berul[ang-ulang,](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png) maka cache-miss sangat tinggi).

Ber[ikut penjelasan lebih detail :](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)

S[etiap blok pada main memory dipetakan dengan line tertentu](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) pada *cache* ***i***

***[= j modulo C](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)*** [di mana i adalah nomor line pada cache yang](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) digunakan un[tuk meletakkan blok main memory ke-j.](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)

[Jika M = 64 dan C = 4, maka pemetaan antara line dengan](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) blok menjadi [seperti berikut :](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)

[Line 0 can hold blocks 0, 4, 8, 12, ...](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)

Lin[e 1 can hold blocks 1, 5, 9, 13, ...](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)

Lin[e 2 can hold blocks 2, 6, 10, 14, ...](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)

Lin[e 3 can hold blocks 3, 7, 11, 15, ...](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)

Pa[da cara ini,](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) *[address](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)* [pada main memory dibagi 3](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) *[field](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)* [atau](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) bagian, yaitu: [o Tag identifier.](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)

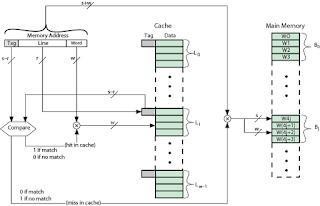
* [Line number identifier](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)
* Word identifier (offset)

*Word identifier* berisi informasi tentang lokasi word atau unit *addressable* lainnya dalam line tertentu pada cache.

*Line identifier* berisi informasi tentang nomor fisik (bukan logika) line pada chace

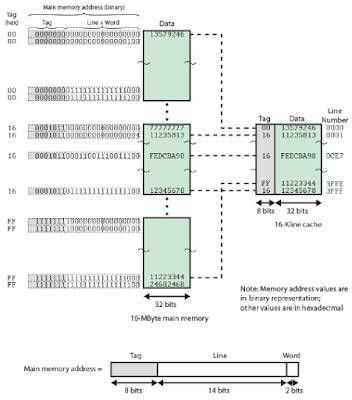
*Tag identifier* disimpan pada cache bersama dengan blok pada *line*.

* [Untuk setiap alamat memory yang dibuat oleh CPU, li](https://2.bp.blogspot.com/-PE1xrgRaBpA/WBHlZVWaTZI/AAAAAAAABDk/nEnnc8tz-sYM7rTMIxVInJ8zOqq_g-OEgCLcB/s1600/Contoh%2BPengalamatan%2BAssociative%2BMapping.png)ne tertentu [yang menyimpan copy alamat tsb ditentukan,](https://2.bp.blogspot.com/-PE1xrgRaBpA/WBHlZVWaTZI/AAAAAAAABDk/nEnnc8tz-sYM7rTMIxVInJ8zOqq_g-OEgCLcB/s1600/Contoh%2BPengalamatan%2BAssociative%2BMapping.png) jika blok tempat [lokasi data tersebut sudah dikopi dari](https://4.bp.blogspot.com/-CwhSVnv77mg/WBHl0XQWjuI/AAAAAAAABDo/bjK387GmLMoZJxZrUQ3GrEQPnYlitRkAwCLcB/s1600/Organisasi%2BK-Way%2BSet%2BAssociative%2BMapping.png) main memory ke *cache*.
* *[Tag](https://4.bp.blogspot.com/-CwhSVnv77mg/WBHl0XQWjuI/AAAAAAAABDo/bjK387GmLMoZJxZrUQ3GrEQPnYlitRkAwCLcB/s1600/Organisasi%2BK-Way%2BSet%2BAssociative%2BMapping.png)* [yang ada pada line akan dicek untuk melihat apaka](https://4.bp.blogspot.com/-CwhSVnv77mg/WBHl0XQWjuI/AAAAAAAABDo/bjK387GmLMoZJxZrUQ3GrEQPnYlitRkAwCLcB/s1600/Organisasi%2BK-Way%2BSet%2BAssociative%2BMapping.png)h benar blok [yang dimaksud ada line tsb.](https://4.bp.blogspot.com/-CwhSVnv77mg/WBHl0XQWjuI/AAAAAAAABDo/bjK387GmLMoZJxZrUQ3GrEQPnYlitRkAwCLcB/s1600/Organisasi%2BK-Way%2BSet%2BAssociative%2BMapping.png)



[Gambar 2.1 : Gambar Organisasi Direct Mapping.](https://4.bp.blogspot.com/-CwhSVnv77mg/WBHl0XQWjuI/AAAAAAAABDo/bjK387GmLMoZJxZrUQ3GrEQPnYlitRkAwCLcB/s1600/Organisasi%2BK-Way%2BSet%2BAssociative%2BMapping.png)

Keuntungan [M](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)[enggunakan Direct Mapping antara lain :](https://2.bp.blogspot.com/-PE1xrgRaBpA/WBHlZVWaTZI/AAAAAAAABDk/nEnnc8tz-sYM7rTMIxVInJ8zOqq_g-OEgCLcB/s1600/Contoh%2BPengalamatan%2BAssociative%2BMapping.png)

* 1. [Mudah](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png) [dan Murah diimplementasikan](https://2.bp.blogspot.com/-PE1xrgRaBpA/WBHlZVWaTZI/AAAAAAAABDk/nEnnc8tz-sYM7rTMIxVInJ8zOqq_g-OEgCLcB/s1600/Contoh%2BPengalamatan%2BAssociative%2BMapping.png)
  2. [Mudah](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png) [untuk menentukan letak salinan data main memory](https://2.bp.blogspot.com/-PE1xrgRaBpA/WBHlZVWaTZI/AAAAAAAABDk/nEnnc8tz-sYM7rTMIxVInJ8zOqq_g-OEgCLcB/s1600/Contoh%2BPengalamatan%2BAssociative%2BMapping.png) pada [ch](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)ace. Kerugian m[enggunakan Direct Mapping antara lain :](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)
     1. S[etiap blok](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png) *[main memory](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)* [hanya dipetakan pada 1 line saja.](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)
     2. Ter[kait dengan sifat lokal pada](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png) *[main memory](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)*[, sangat mungkin](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png) mengakses blok yang di[petakan pada](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) *[line](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)* [yang sama pada](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) *[cache](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)*[. Blok](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) seperti ini akan menyebabka[n seringnya sapu masuk dan keluar data](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) ke/dari *cache*, sehingga *hit ratio* menge[cil.](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) *[Hit ratio](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)* [adalah perbandingan](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) antara jumlah ditemukannya data pada cache denga[n jumlah usaha](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) mengakses *cache*

[Gambar 2.2 : Gambar Contoh Pengalamatan Direct Mapping.](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)

Ringkasan *[direct mapping](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)* [nampak pada tabel berikut:](https://2.bp.blogspot.com/-3DXyQBgwNQo/WBHlBBg6oQI/AAAAAAAABDU/jkpEOV0d1Jsaay0YAjoaLB7hii-ZARrYQCLcB/s1600/Organisasi%2BAssociative%2BMapping.png)

|  |  |
| --- | --- |
| **Item** | **[Keterangan](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png)** |
| Panjang ala[mat](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) | [(s+w) bits](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) |
| Jumlah uni[t yang dapat dialamati](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) | [2s+w words or bytes](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) |
| Ukuran B[loks sama dengan ukuran Line](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) | [2w words or bytes](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) |
| Jumlah bl[ok memori utama](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) | [2s+ w/2w = 2s](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) |
| Jumlah lin[e di chace](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) | [M = 2r](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) |
| Besarnya ta[g](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) | [(s - r) bits](https://4.bp.blogspot.com/-6djf3U5Pdws/WBHmLMpdDwI/AAAAAAAABDw/w_SKHRc6LnoRaa0YqW7We52RB-Xeen5sQCLcB/s1600/Contoh%2BPengalamatan%2B2-Way%2BAssociative%2BMapping.png) |

1. Perbedaan antara mode kerja “Real-Mode” dan mode kerja “Protect-Mode” pada PC IBM Compatible !

* **Real-Mode**

Real-Mode adalah sebuah modus di mana prosesor Intel x86 berjalan seolah-olah dirinya adalah sebuah prosesor Intel 8085 atau Intel 8088, meski ia merupakan prosesor Intel 80286 atau lebih tinggi. Karenanya, modus ini juga disebut sebagai modus 8086 (8086 Mode). Dalam modus ini, prosesor hanya dapat mengeksekusi instruksi 16-bit saja dengan menggunakan register internal yang berukuran 16-bit, serta hanya dapat mengakses hanya 1024 KB dari memori karena hanya menggunakan 20-bit jalur bus alamat. Semua program DOS berjalan pada modus ini. Prosesor yang dirilis setelah 8085, semacam Intel 80286 juga dapat menjalankan instruksi 16-bit, tapi jauh lebih cepat dibandingkan 8085. Dengan kata lain, Intel 80286 benar-benar kompatibel dengan prosesor Intel 8086 yang didesain sebelumnya. Sehingga prosesor Intel 80286 pun dapat menjalankan program-program 16-bit yang didesain untuk 8085 (IBM PC), dengan tentunya

kecepatan yang jauh lebih tinggi.Dalam Real-mode, tidak ada proteksi ruang alamat memori, sehingga tidak dapat melakukan multi-tasking. Inilah sebabnya, mengapa program-program DOS bersifat single-tasking. Jika dalam modus real terdapat multi-tasking, maka kemungkinan besar antara dua program yang sedang berjalan, terjadi tabrakan (crash) antara satu dengan lainnya.

* **Protected Mode**

Modus terproteksi (protected mode) adalah sebuah modus di mana terdapat proteksi ruang alamat memori yang ditawarkan oleh mikroprosesor untuk digunakan oleh sistem operasi. Modus ini datang dengan mikroprosesor Intel 80286 atau yang lebih tinggi. Karena memiliki proteksi ruang alamat memori, maka dalam modus ini sistem operasi dapat melakukan multitasking.Prosesor Intel 80286 memang dilengkapi kemampuan masuk ke dalam modus terproteksi, tapi tidak dapat keluar dari modus tersebut tanpa harus mengalami reset (warm boot atau cold boot). Kesalahan ini telah diperbaiki oleh Intel dengan merilis prosesor Intel 80386 yang dapat masuk ke dalam modus terproteksi dan keluar darinya tanpa harus melakukan reset. Inilah sebabnya mengapa Windows 95/Windows 98 dilengkapi dengan modus Restart in MS-DOS Mode, meski sebenarnya sistem operasi tersebut merupakan sistem operasi yang berjalan dalam modus terproteksi.