
Corso di Architettura dei Sistemi a Microprocessore

Architettura dei Calcolatori



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Riferimenti

➤ Riferimenti:

- Hamacher, Vranesic, Zaky, “Computer Organization and Embedded Systems”, (6th edition), McGraw-Hill:
Chapter 1

Roadmap

- Tipi di computer
- Unità funzionali
 1. Memorie
 2. Processore
 3. I/O
 4. Datapath e Unità di Controllo
 5. Connessione delle unità: il BUS
 6. Ciclo di Esecuzione del processore
- Prestazioni
- Il Motorola 68K

Tipi di computer

- Personal Computers
 - Desktop computers
 - Notebook computers
- Smartphone, Tablet
- Carte a microprocessore
- Embedded Systems ...
 - Lavatrice
 - Smart TV
 - ...
- Cloud Computing

Esempio di Desktop

The screenshot shows a Windows Internet Explorer browser window displaying the Dell website. The address bar shows the URL: <http://www1.euro.dell.com/content/products/category.aspx/desktops?c=it&cs=it&ds=it&ss=dhs>. The page features a navigation menu with options like 'Prodotti', 'Servizi', 'Supporto', 'Assistenza Vendite', and 'Conto'. A search bar is visible with the text 'Cerca'. The main content area is titled 'Desktop Dell' and includes a sidebar with filters for 'Restringere la scelta' (Types, Family, Processor, Design) and 'Collegamenti utili' (Windows Vista, Offers). The main content area displays a large banner for 'COME È SEMPLICE LA VITA!' with a woman using a computer, and a section for 'Desktop Dell' with three product categories: 'Applicazioni di base per privati', 'Intrattenimento', and 'XPS e Prestazioni'. A 'Risparmiate Fino a 100€' banner is also present. The footer of the browser window shows 'Internet' and '100%' zoom level.

Esempio di Notebook

The screenshot shows the Sony VAIO website in a Windows Internet Explorer browser window. The address bar displays a URL starting with 'http://vaio.sony.it/view/ShowProductCategory.action'. The page features a navigation menu with options like 'HOME PAGE', 'PERCHÉ SCEGLIERE VAIO?', 'PRODOTTI', 'ASSISTENZA', and 'CLUB VAIO'. The main content area is titled 'Notebook VAIO' and displays six product series: Serie AR, Serie C, Serie BX, Serie FE, Serie N, and Serie UX. Each series is accompanied by a small image of the laptop and a list of key features and specifications. For example, the Serie AR features a 17.0" wide screen, while the Serie BX has a 14.1" XGA screen. The bottom of the browser window shows the status bar with 'Internet' and '100%' zoom level.

Esempio di Smartphone/Tablet

| | | | |
|---------------------|--------------------------|-----------------------------------------------------|---------------------------|
| | 1136 x 640 (326 ppi) | 1280 x 720 (306 ppi) | 1280 x 768 (331 ppi) |
| RISOLUZIONE | IPS Retina Display | Super AMOLED HD | PureMotion HD+ IPS LCD |
| TIPOLOGIA SCHERMO | Non specificata | 2100 mAh | 2000 mAh |
| BATTERIA | 16/32/64 GB | 16/32/64 GB | 32 GB |
| MEMORIA ROM | Nessuna | Micro-SDXC | Nessuna |
| ESPANSIONE | 8MP, LED, f/2.4 | 8MP, LED, f/2.6 | 8MP, LED, f/2.0 |
| FOTOCAMERA | 1.2 MP | 2 MP | 1.3 MP |
| FOTOCAMERA FRONTALE | No | Si | Si |
| NFC | 4 | 4 | 3.1 |
| BLUETOOTH | Apple A6 - Dual-core | Exynos 4412 - Quad-core | Snapdragon S4 - Dual-core |
| PROCESSORE | Non specificata | Mali-400MP | Adreno 225 |
| GPU | 1 GB | 1 GB | 1 GB |
| RAM | No | Si | Si |
| MHL | 802.11 a/b/g/n dual-band | 802.11 a/b/g/n dual-band | 802.11 a/b/g/n |
| Wi-Fi | | Android 4.0.4 ICS - aggiornabile a 4.1.1 Jelly Bean | Windows Phone 8 |
| SISTEMA OPERATIVO | iOS 6 | | |

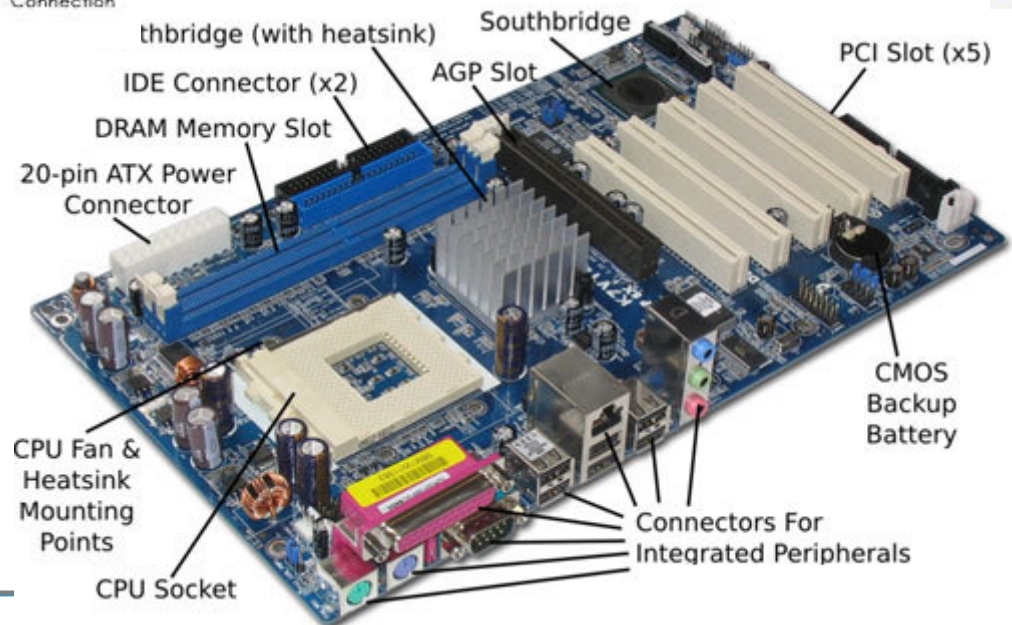
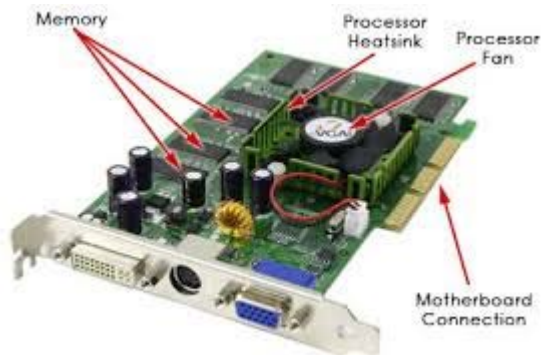


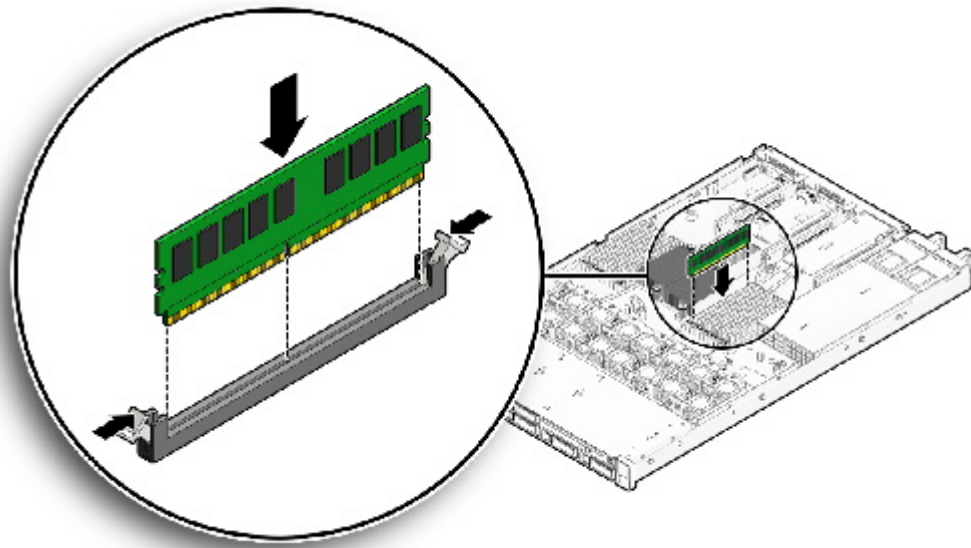
| | | |
|----------------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Processor | <ul style="list-style-type: none"> Nvidia Tegra 3 Quad-core 1.6GHz Cortex A9 | <ul style="list-style-type: none"> Apple A6X Dual-core GPU: PowerVR SGX543MP4 |
| RAM | 1GB | 1GB |
| Screen size and type | <ul style="list-style-type: none"> 10.1 inch Super IPS+ LCD | <ul style="list-style-type: none"> 9.7 inch IPS LCD |
| Resolution | 1920 x 1200 pixels | 1536 x 2048 pixels |
| DPI | 224 ppi | 264 ppi |
| Storage | 32GB/64GB | 16GB/32GB/64GB |
| microSD | Yes, up to 32GB | No |
| Battery | <ul style="list-style-type: none"> 25Wh 10 hours of use time | <ul style="list-style-type: none"> 42.5 Wh 10 hours of use time |
| Rear Camera | <ul style="list-style-type: none"> 8MP | <ul style="list-style-type: none"> 5MP |



Overview dei componenti Hardware

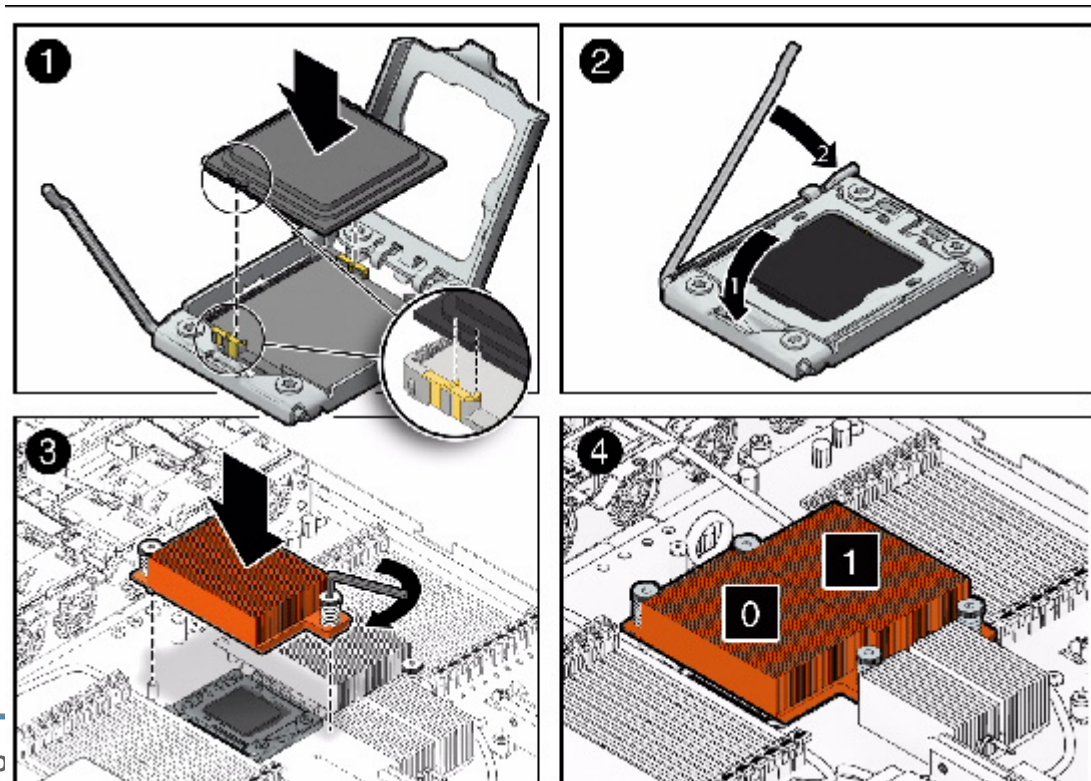


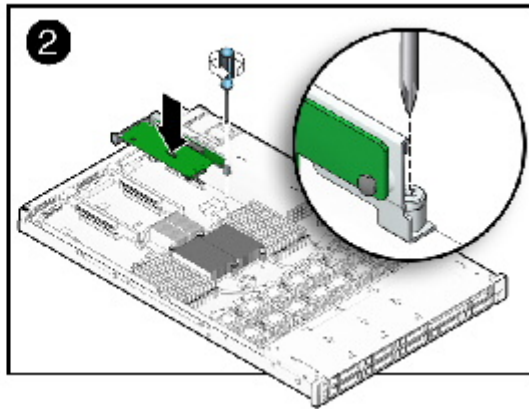
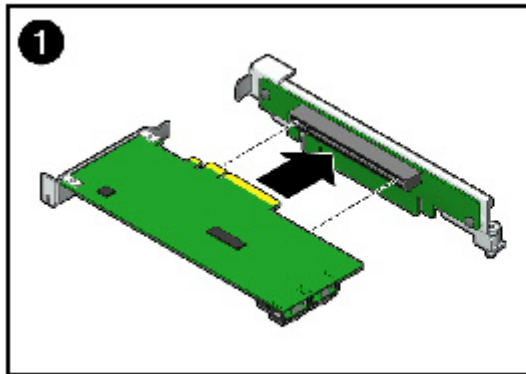




Installare una memoria DIMM

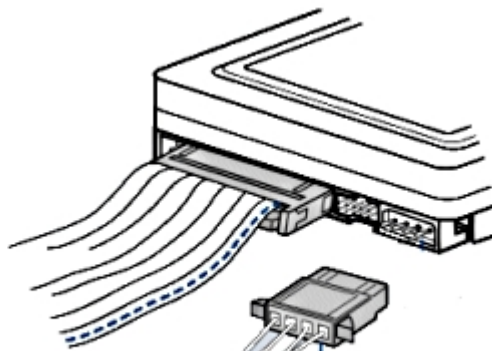
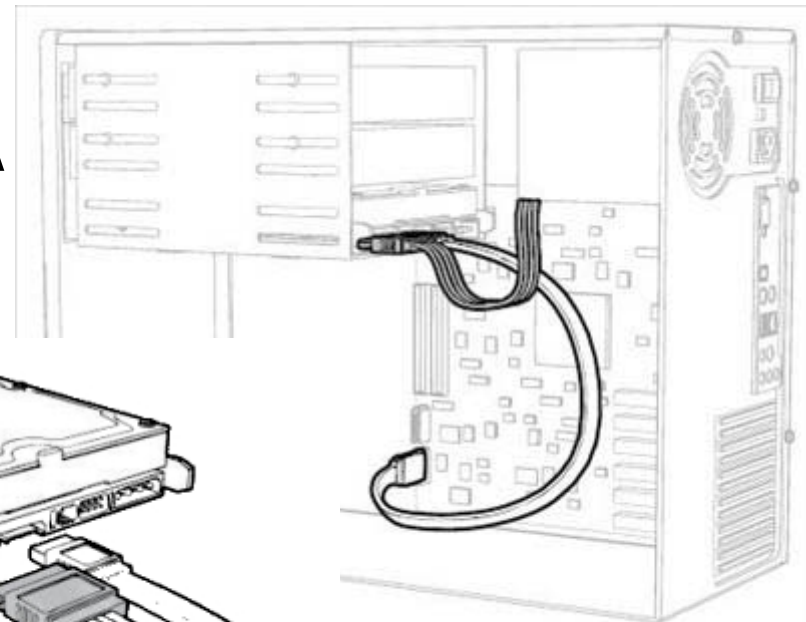
Installare una CPU



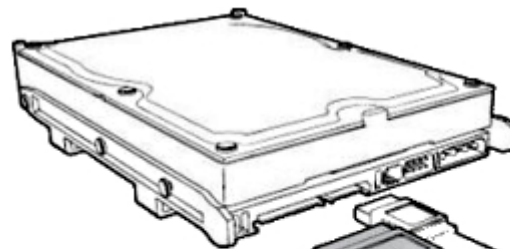


Installare una PCI card

Installare un HD IDE/SATA



Legacy Molex (4-Pin)
Power Connector

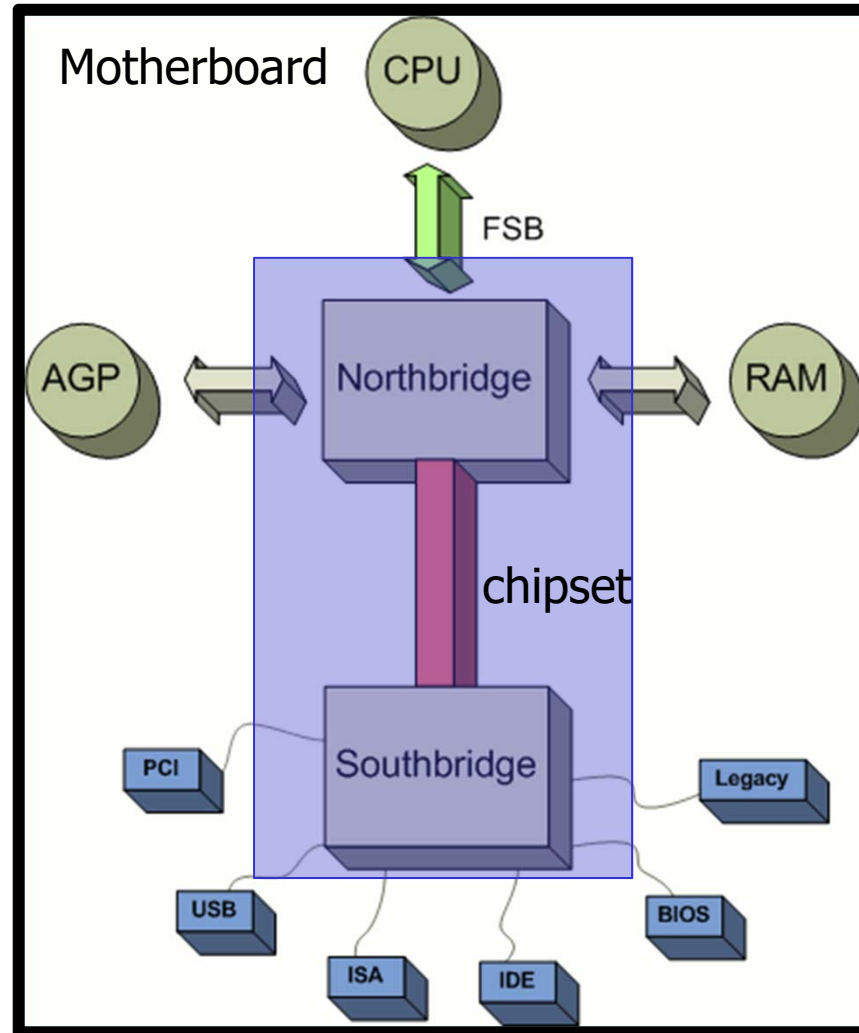


Serial ATA (SATA)
Power Connector

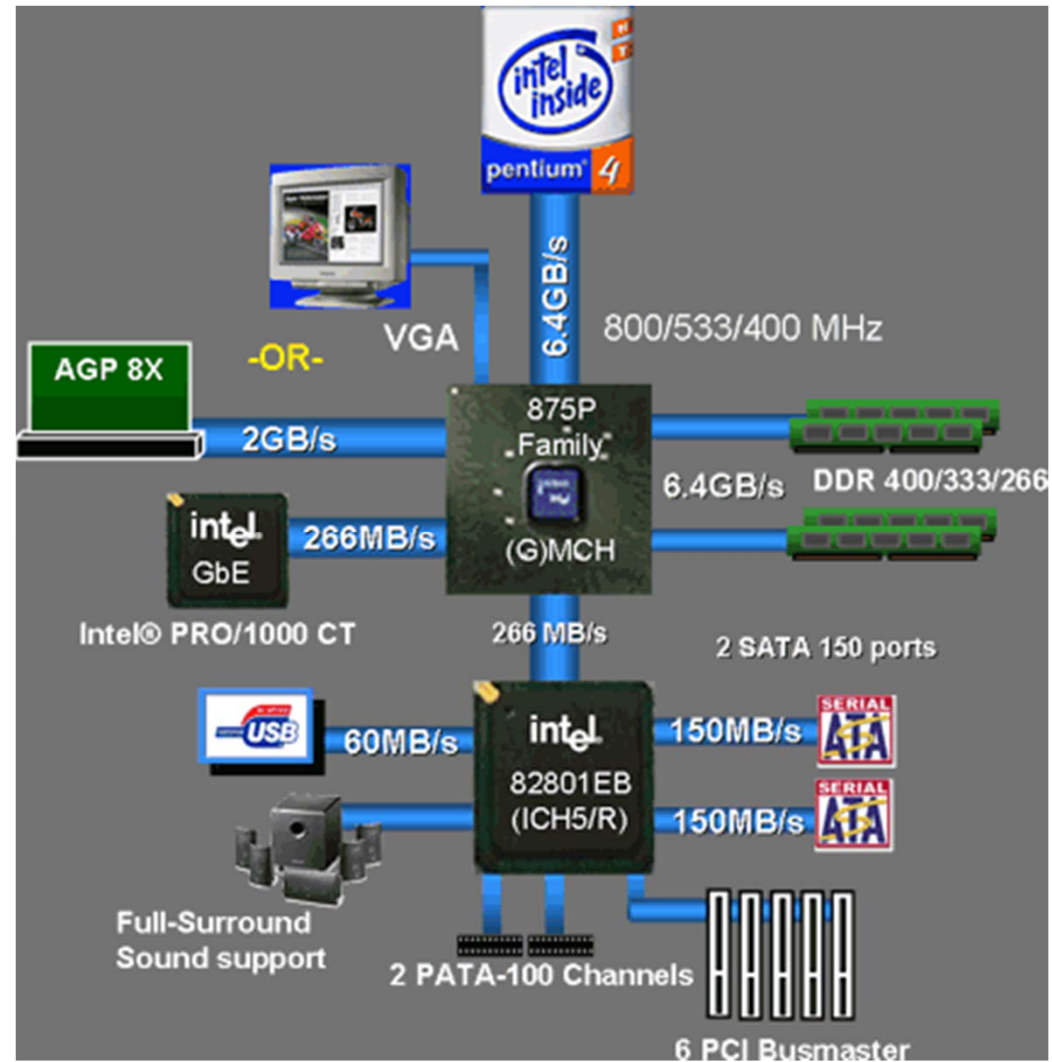
ATA

SS) Research Group

Chipset (northbridge and southbridge)



Un esempio dal mondo reale



Domande

- Cos'è una GPU?
- Che protocolli di comunicazione si utilizzano per comunicare con la GPU?
- Cosa è il Northbridge?