

CIVIFORM

CODING E ROBOTICA

PER L'INNOVAZIONE SOCIALE

Cividale, gennaio-febbraio 2022

HARDWARE

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La parte fisica, tangibile, di un calcolatore.

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Sostanzialmente immutabile, salvo rari casi.

HARDWARE



SOFTWARE

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Insieme dei programmi impiegati su un calcolatore.

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Installati dall'utente a seconda delle necessità.

SOFTWARE



FIRMWARE

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Programma integrato nel calcolatore.

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Programma integrato nel calcolatore.

Sovrintende la fase di avvio del calcolatore.

FIRMWARE

Programma integrato nel calcolatore.

Sovrintende la fase di avvio del calcolatore.

Non modificabile dall'utente.

FIRMWARE

● Phoenix - AwardBIOS v6.00PC, An Energy Star Ally
✈ Copyright (C) 1984-2005, Phoenix Technologies, LTD



ASUS A8N-SLI Premium ACPI BIOS Revision 1011-001

Main Processor: AMD Athlon(tm) 64 Processor 4800+
Memory Testing : 2897152K OK(Installed Memory: 2897152K)
Memory information: DDR 400 Dual Channel, 128-bit

Chipset Model: nForce 4
Primary IDE Master : PLEXTOR DVD PX-716AL 1.02
Primary IDE Slave : None
Secondary IDE Master : CD-W524E 1.0E
Secondary IDE Slave : None

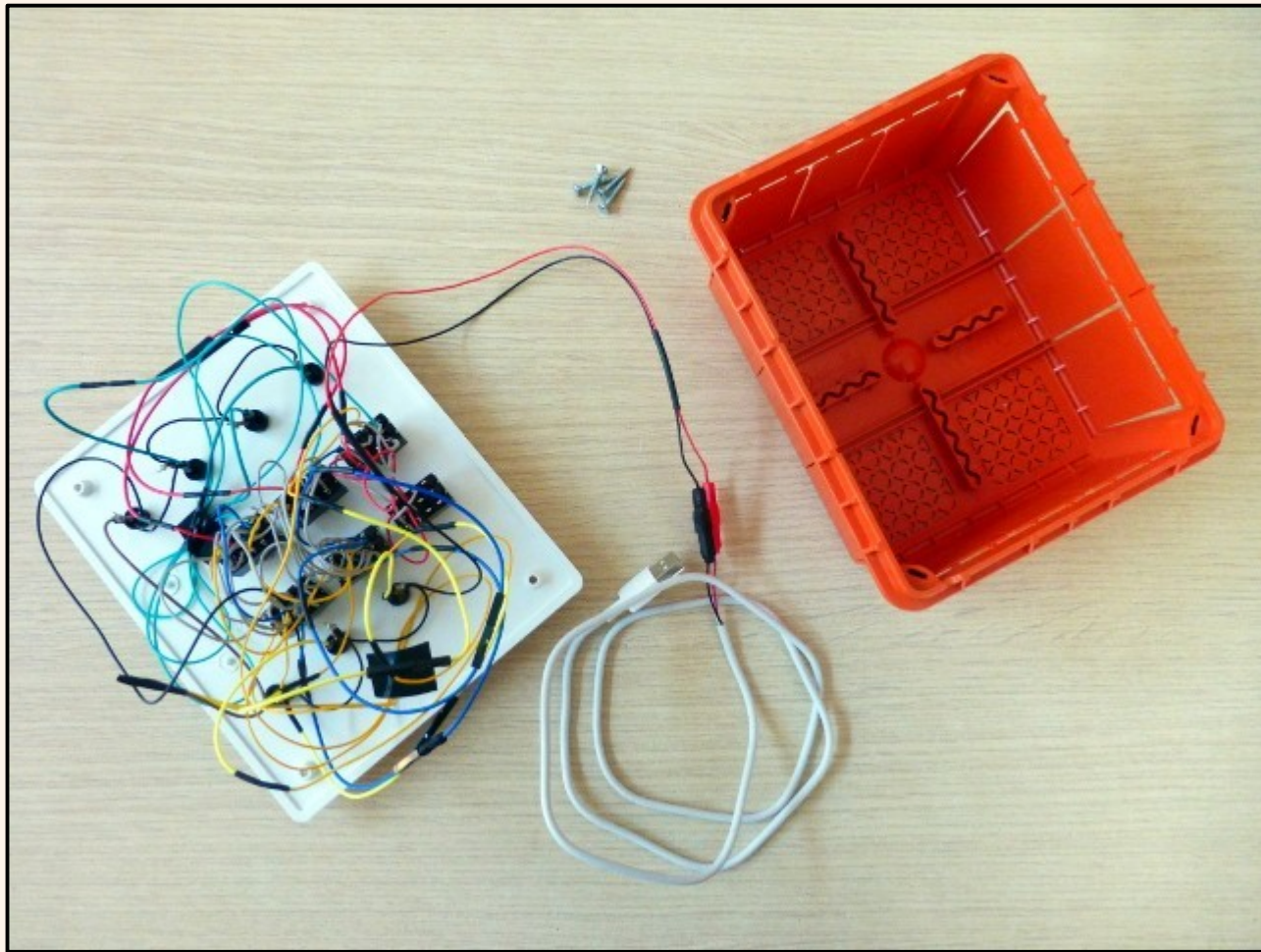
Press F1 to continue, DEL to enter SETUP
12/07/2005-NF-CK804-A8NSLI-P-00

FIRMWARE

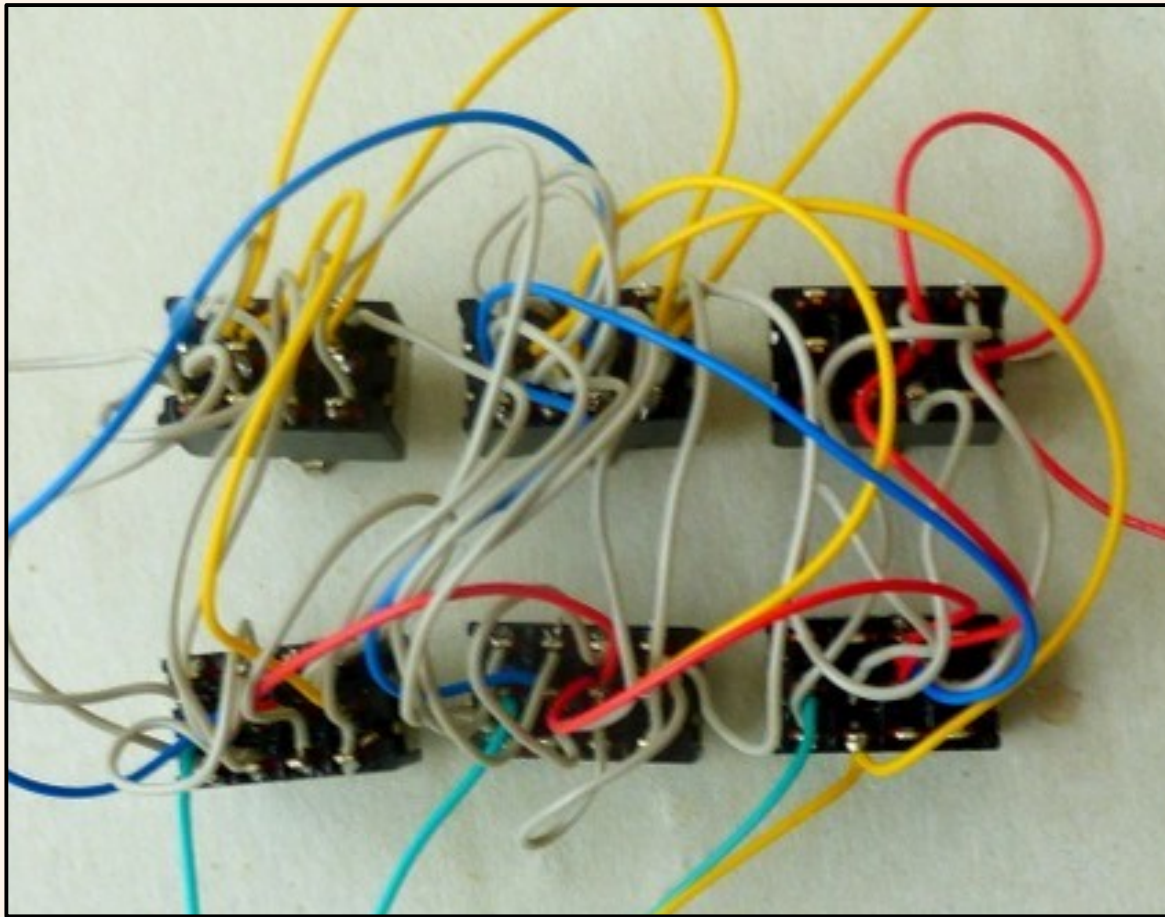


CIRCUITI CHE CALCOLANO?

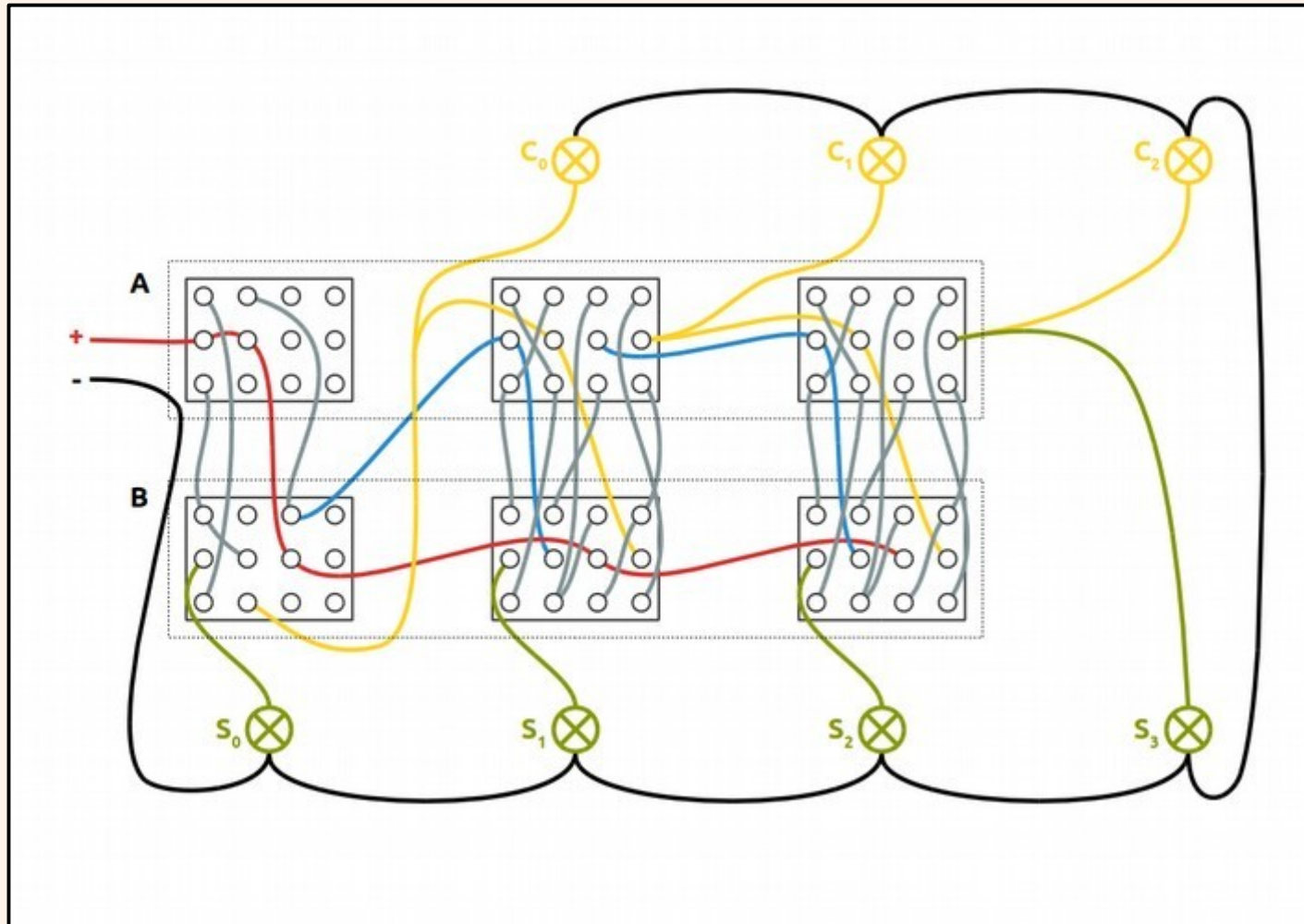
CIRCUITI CHE CALCOLANO?



























































CIRCUITI CHE CALCOLANO?



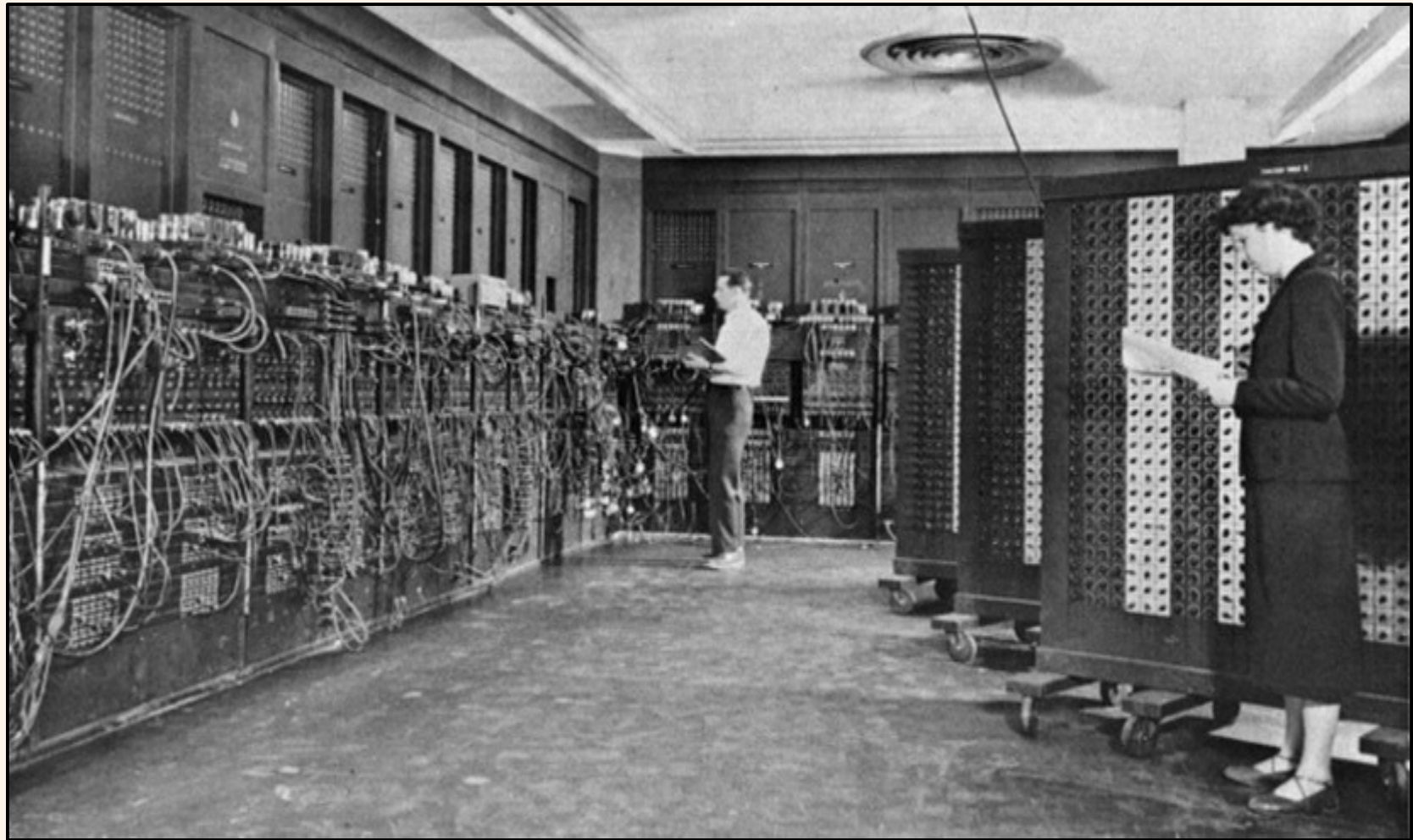
CIRCUITI CHE CALCOLANO?



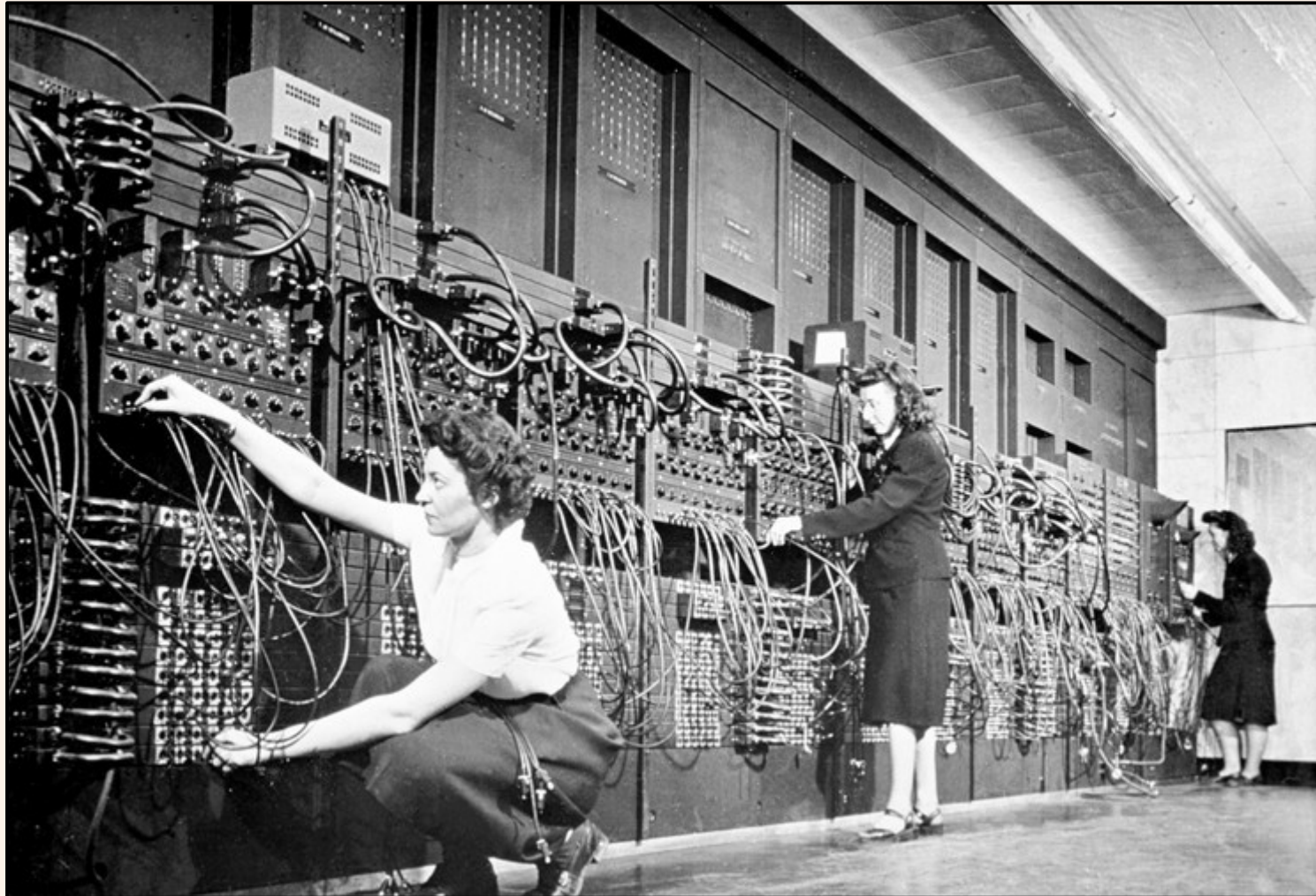
CIRCUITI CHE CALCOLANO?

0	  	8	   
1	  	9	   
2	  	10	   
3	  	11	   
4	  	12	   
5	  	13	   
6	  	14	   
7	  	15	   

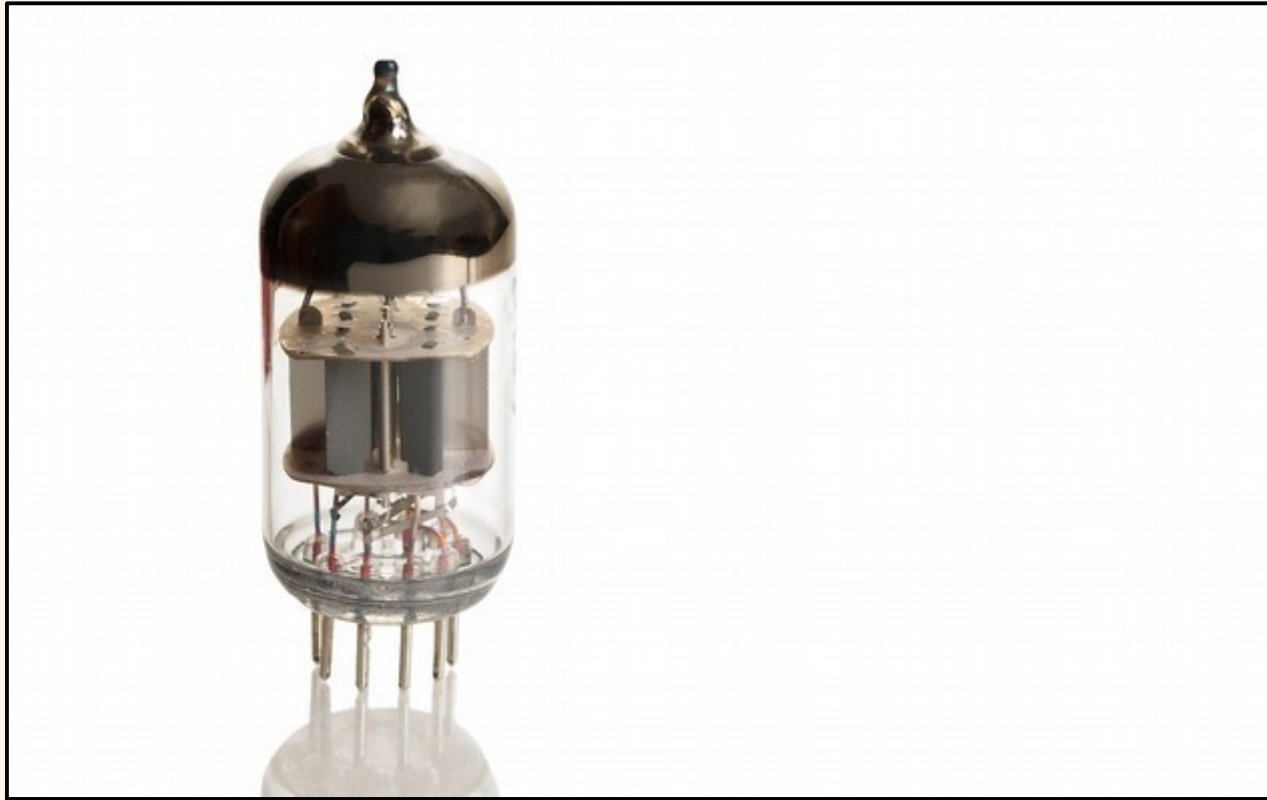
ENIAC, 1947



ENIAC, 1947



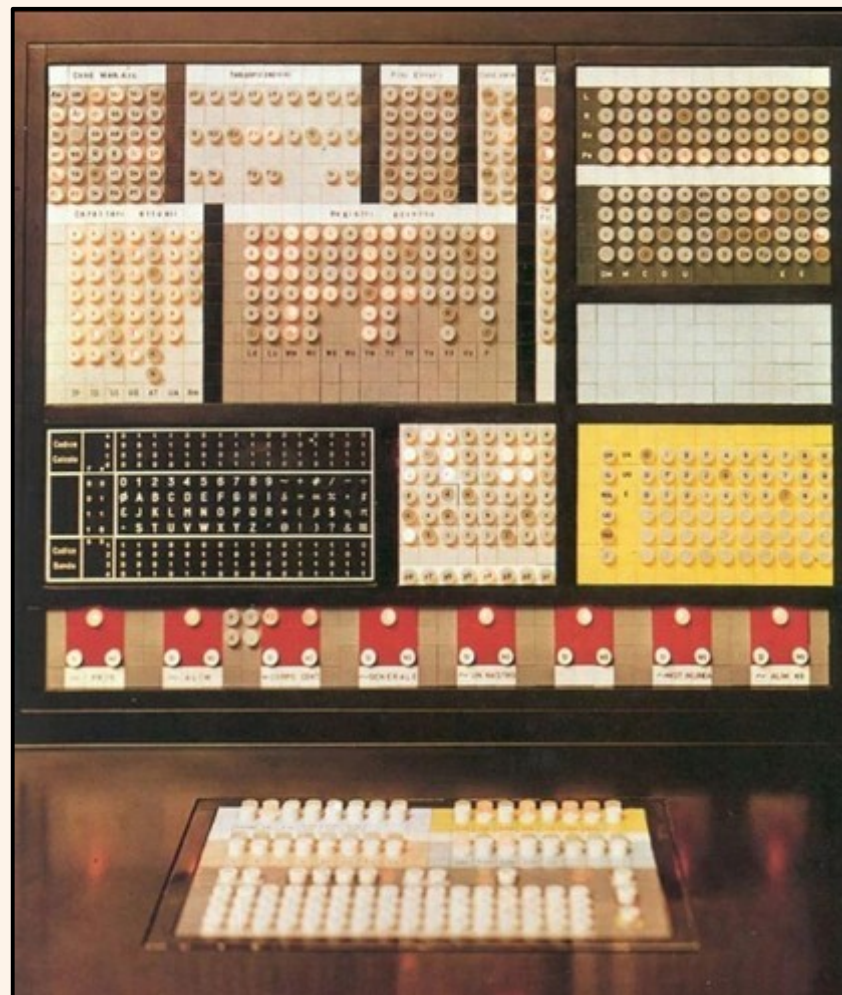
ENIAC, 1947



ELEA 9003, 1959



ELEA 9003, 1959



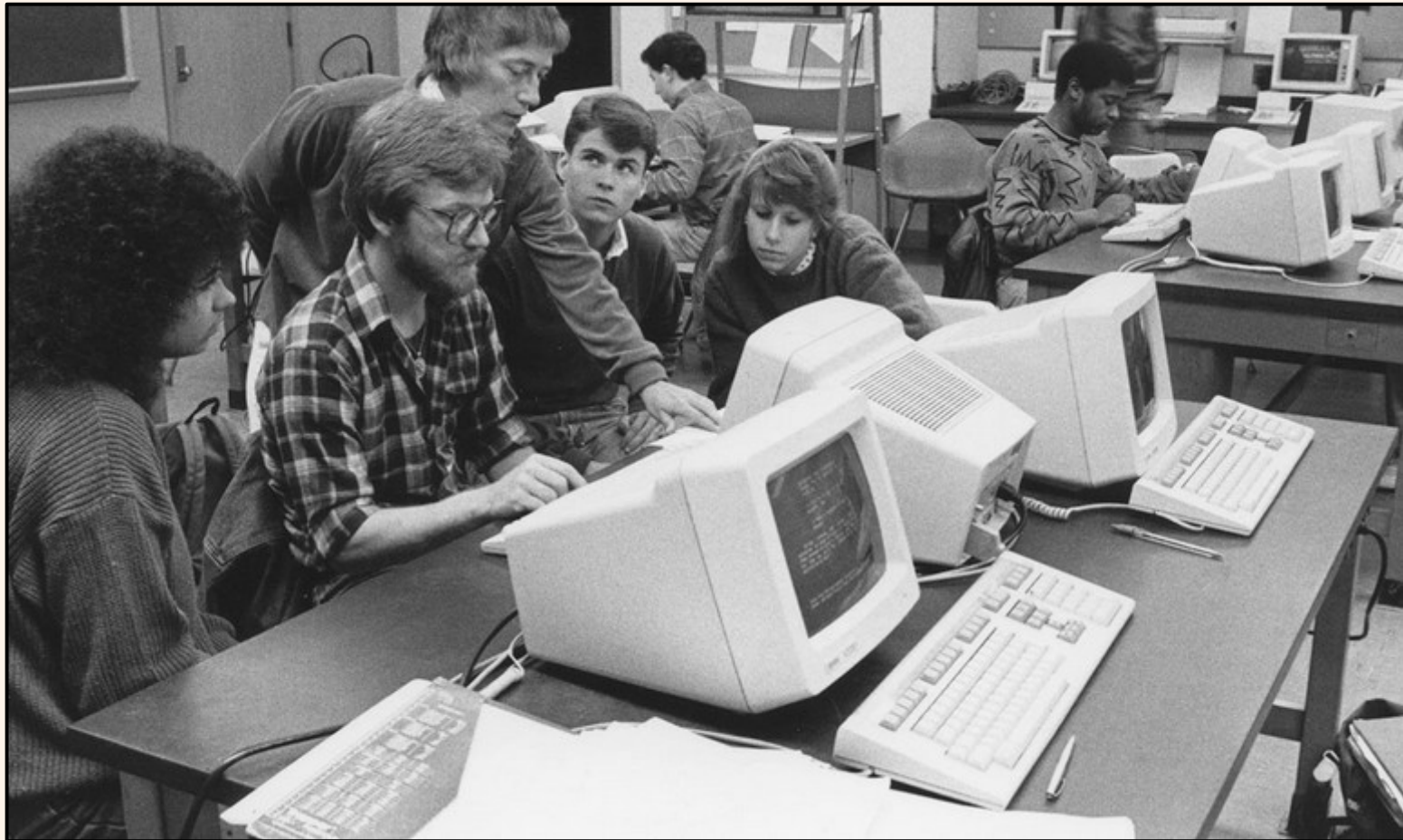
ELEA 9003, 1959



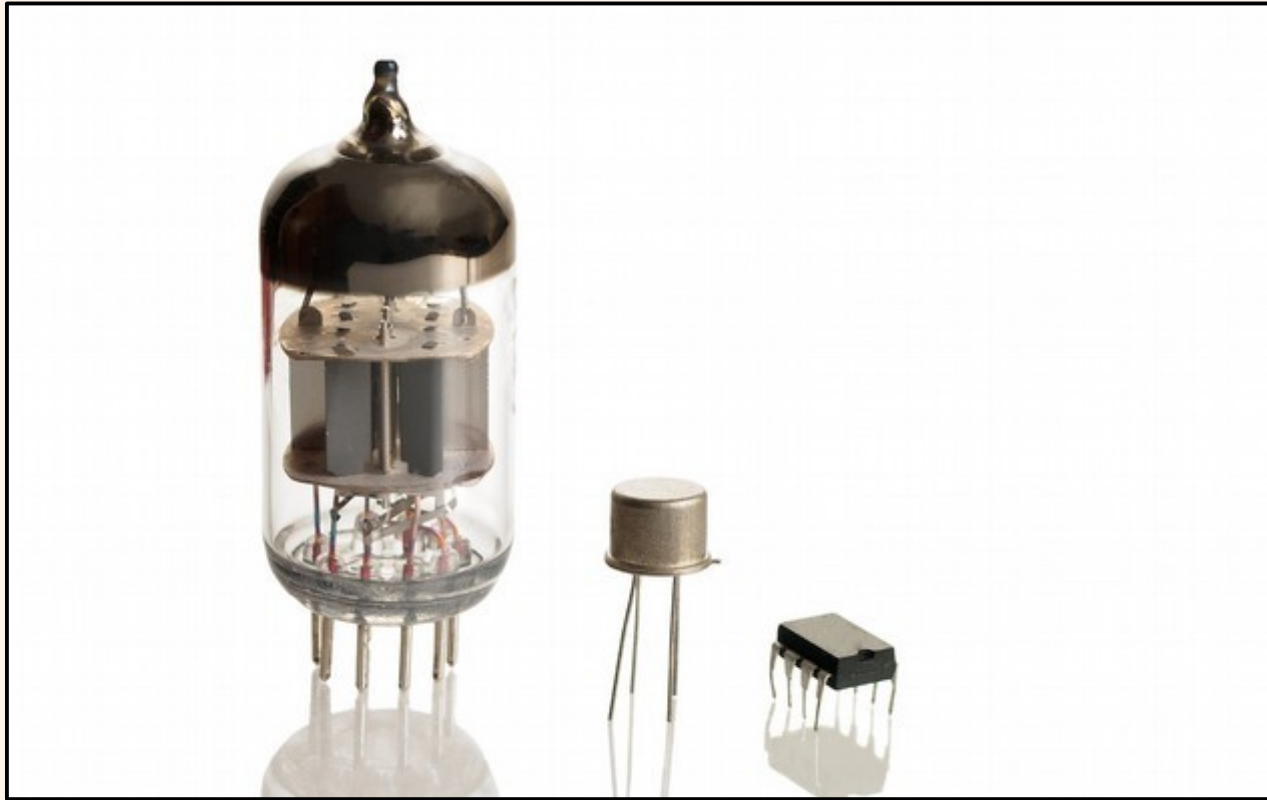
PDP-11, 1970



PDP-11, 1970



PDP-11, 1970



ALTAIR 8800, 1975

HOW TO "READ" FM TUNER SPECIFICATIONS

Popular Electronics

WORLD'S LARGEST-SELLING ELECTRONICS MAGAZINE JANUARY 1975/75¢

PROJECT BREAKTHROUGH!

**World's First Minicomputer Kit
to Rival Commercial Models...**

"ALTAIR 8800" SAVE OVER \$1000



ALSO IN THIS ISSUE:

- An Under-\$90 Scientific Calculator Project
- CCD's—TV Camera Tube Successor?
- Thyristor-Controlled Photoflashers



TEST REPORTS:

- Technics 200 Speaker System
- Pioneer RT-1011 Open-Reel Recorder
- Tram Diamond-40 CB AM Transceiver
- Edmund Scientific "Kirlian" Photo Kit
- Hewlett-Packard 5381 Frequency Counter

ALTAIR 8800, 1975



APPLE II, 1977



COMMODORE VIC 20, 1980



SINCLAIR ZX81, 1981



COMMODORE 64, 1982



SINCLAIR ZX SPECTRUM, 1982



TOSHIBA MSX HX-10, 1984



COMMODORE 128, 1985



PC IBM, 1981



2020



2020



2020



2020



2020



2020



2020

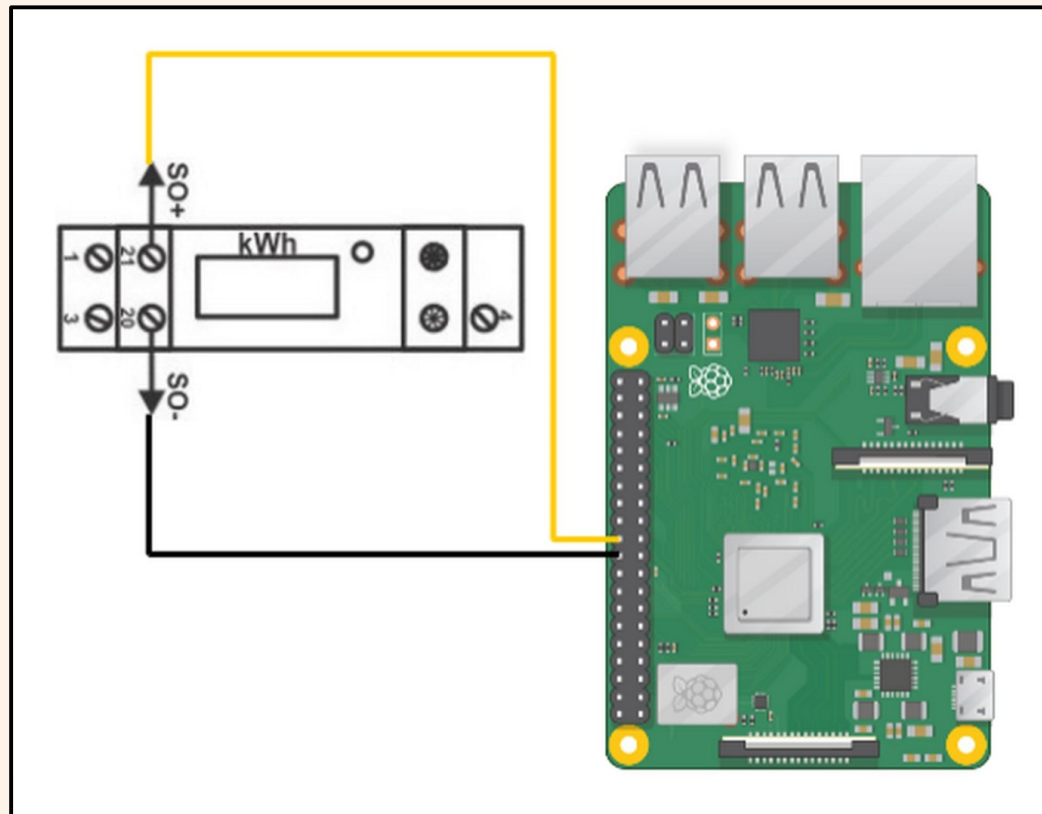


2020



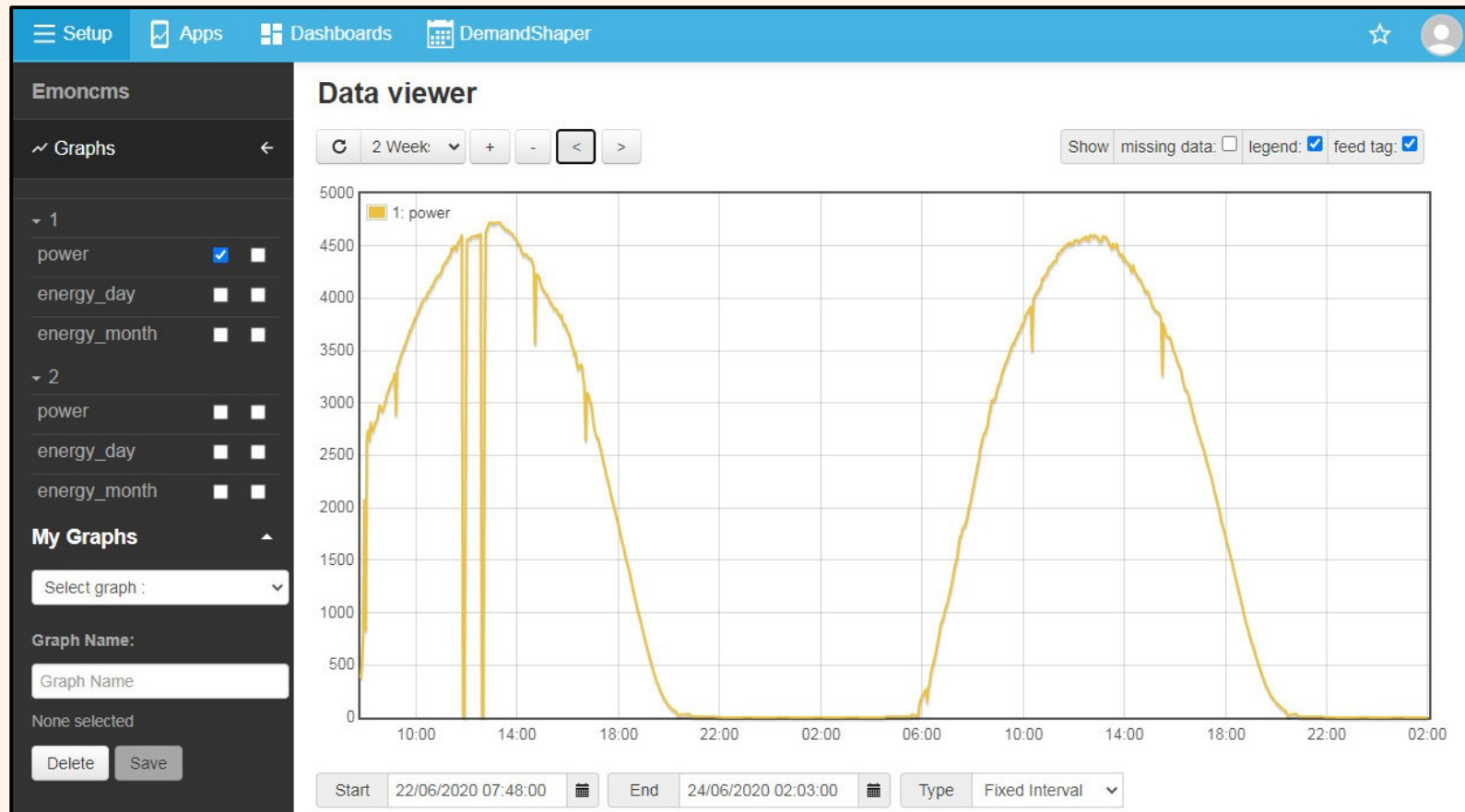
Raspberry Pi (2012)

2020



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2020



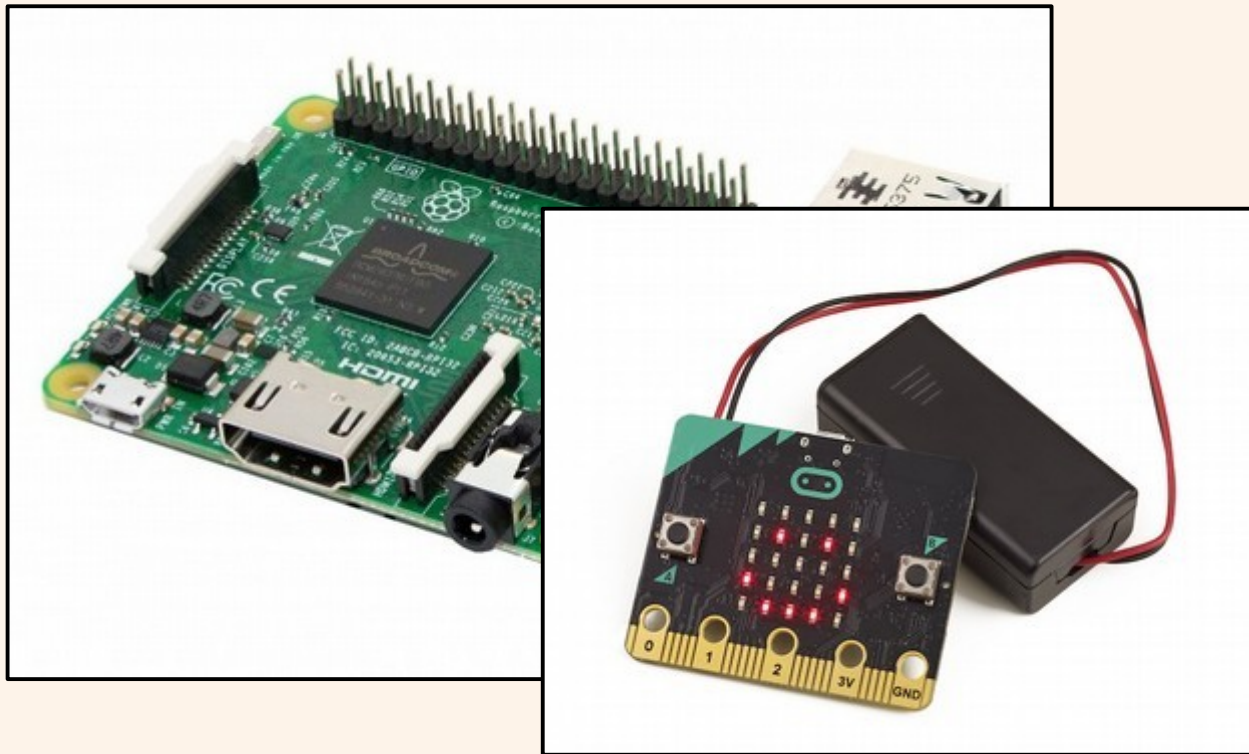
Raspberry Pi (2012)

2020



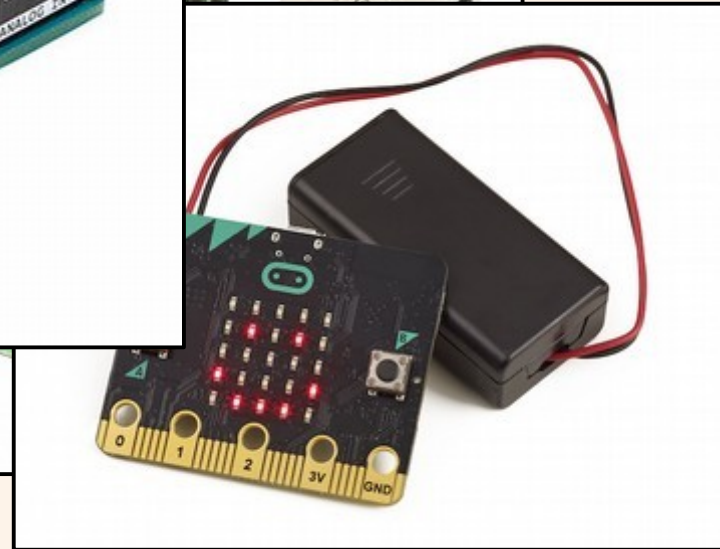
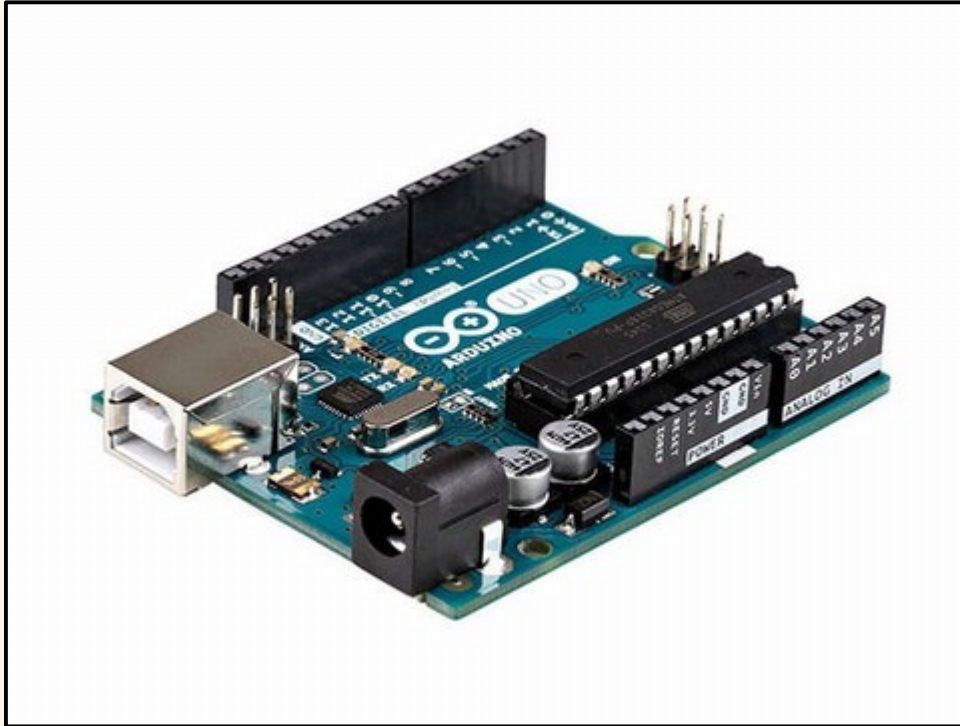
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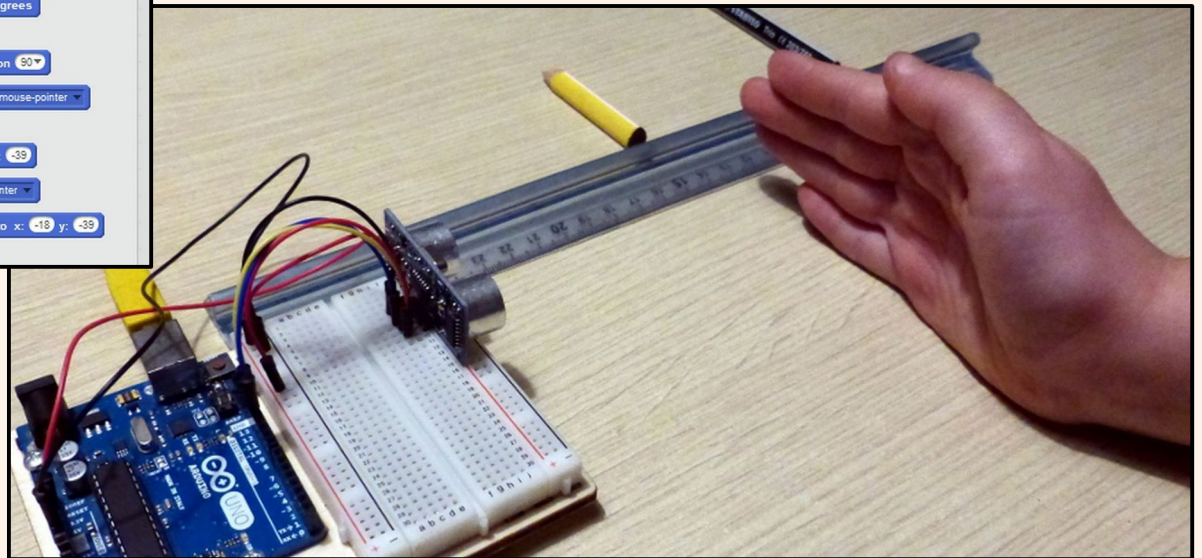
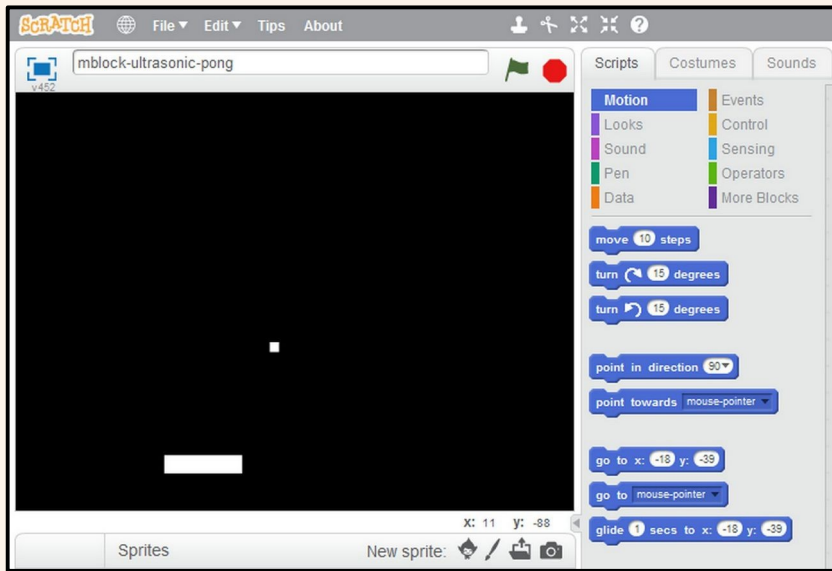
BBC Micro:Bit (2016)

2020



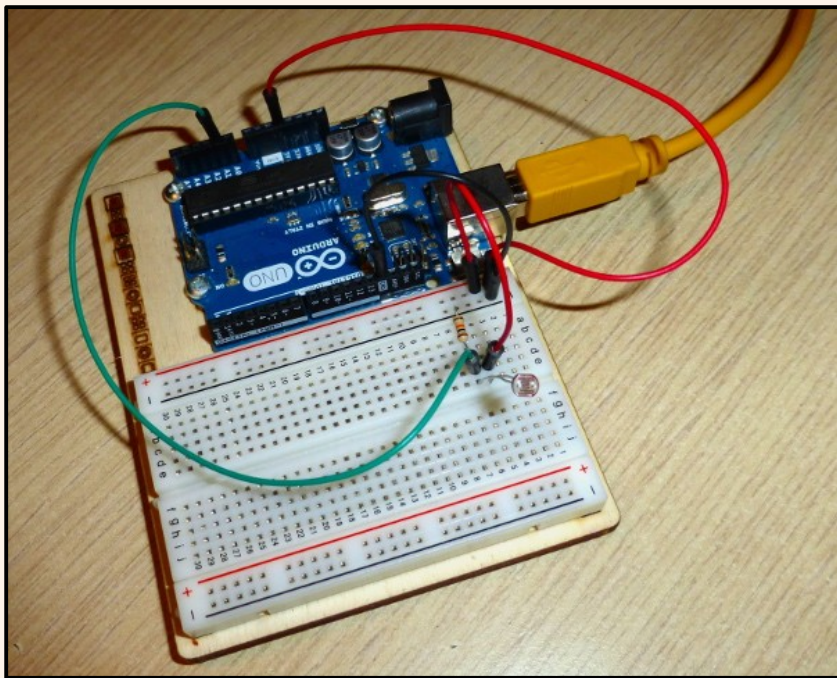
Arduino (2005)

2020



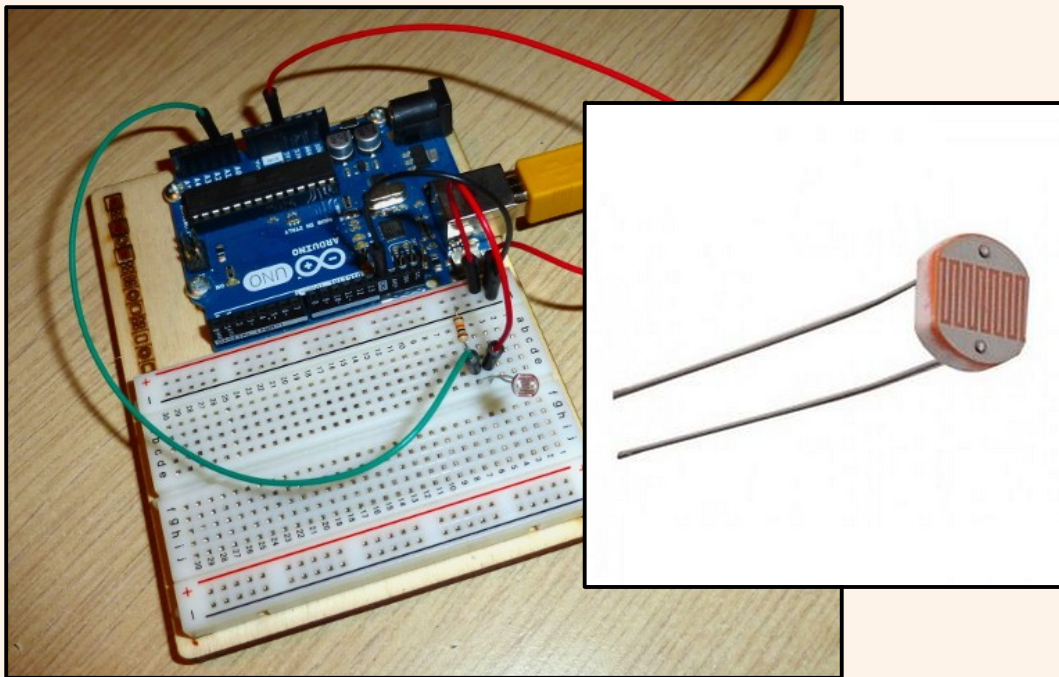
Arduino (2005)

2020



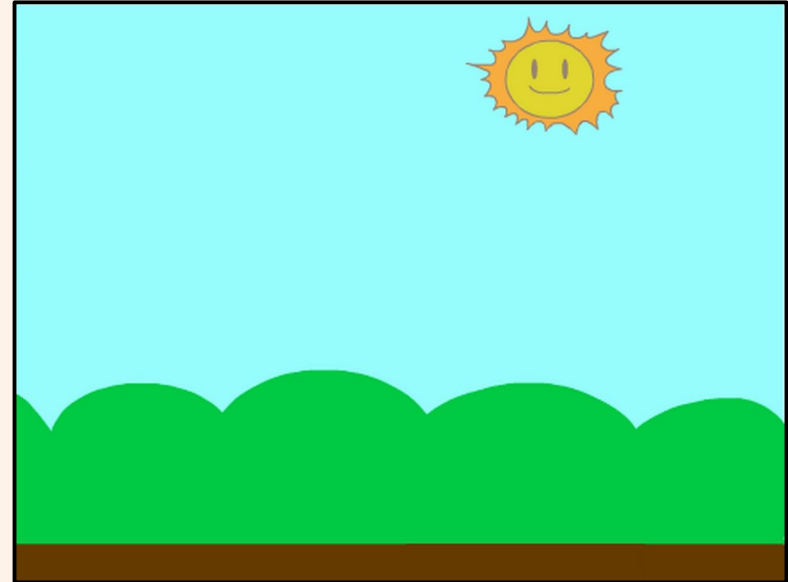
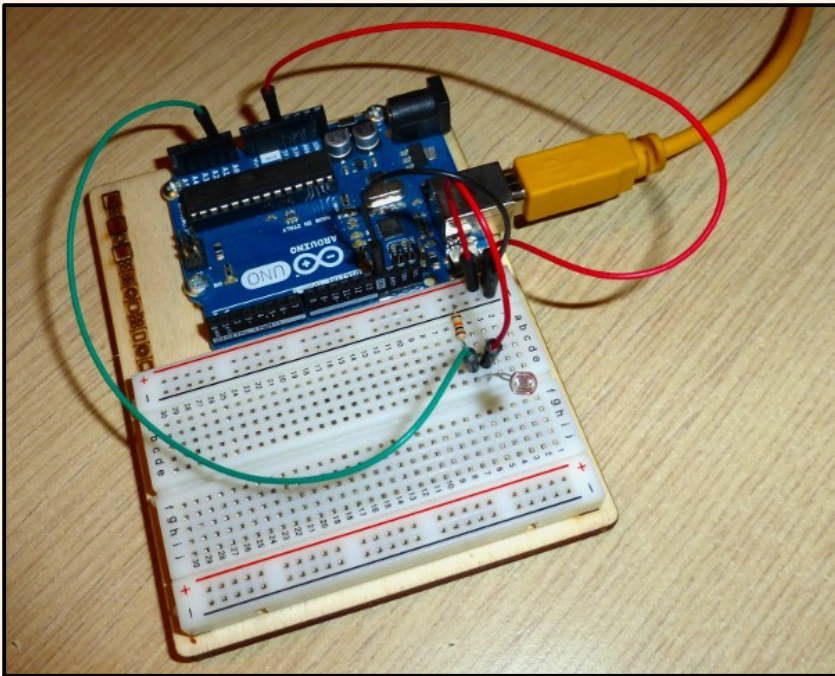
Arduino (2005)

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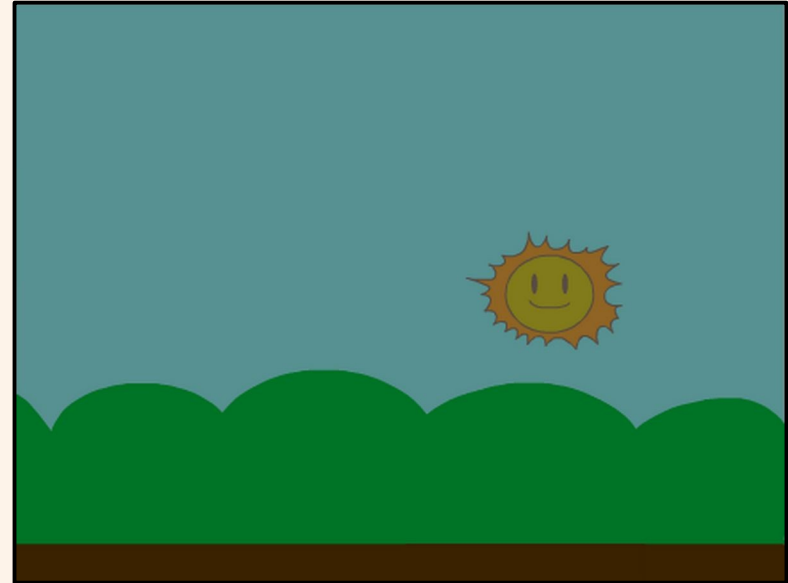
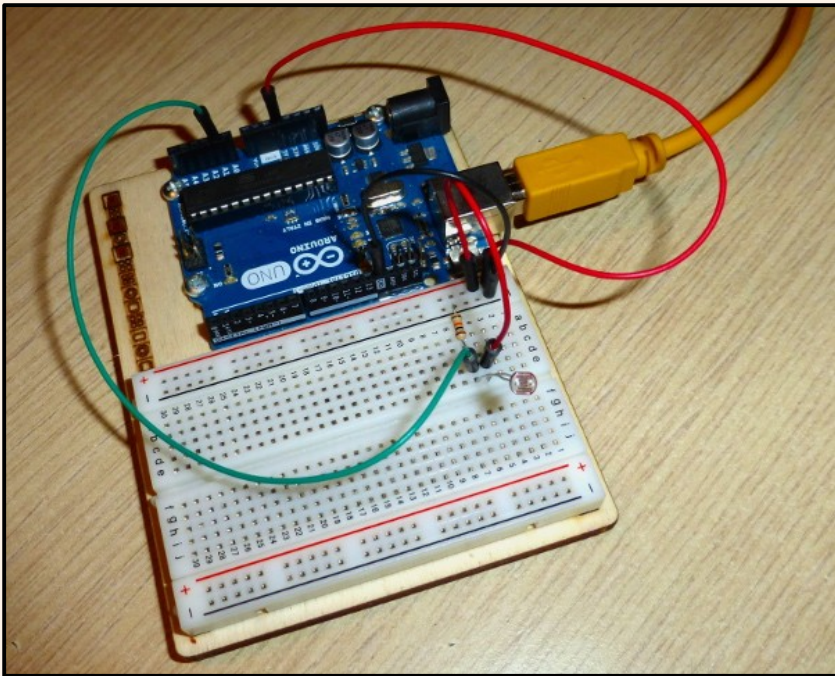
Arduino (2005)

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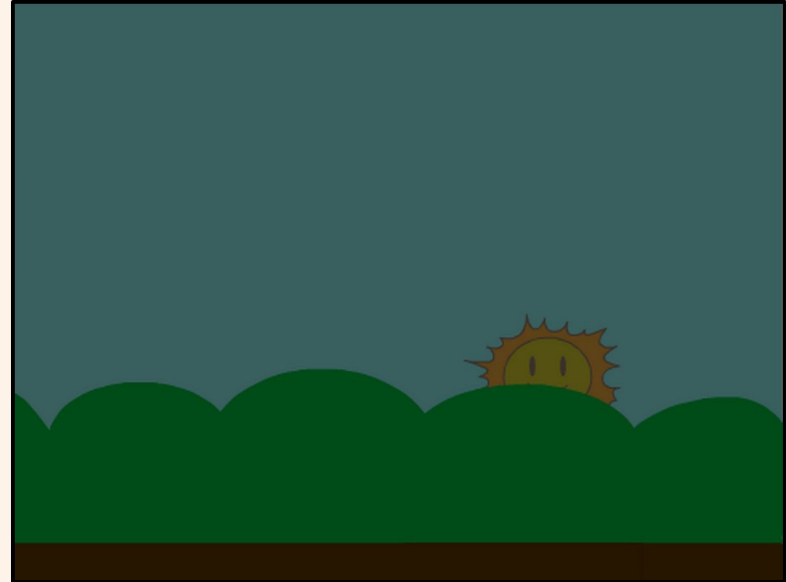
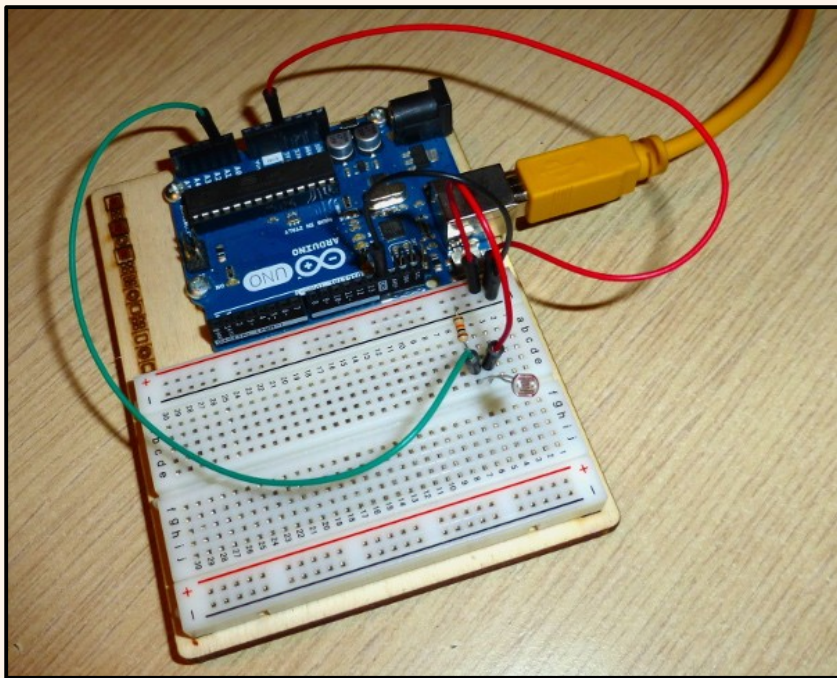
Arduino (2005)

2020



Arduino (2005)

2020



Arduino (2005)

ARCHITETTURA



Unità centrale

ARCHITETTURA



ARCHITETTURA



Processore

The diagram shows a large, light blue rectangular area with a black border. Inside this area, in the top-left corner, is a smaller blue rectangle with a black border. The word 'Processore' is written in black text inside this smaller rectangle.

PROCESSORE

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Detto anche **CPU** – Central Processing Unit.

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Si occupa dell'esecuzione dei programmi
Effettua i calcoli logici e aritmetici.

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Si occupa dell'esecuzione dei programmi
Effettua i calcoli logici e aritmetici.

Sovrintende il funzionamento di tutti gli altri
componenti del calcolatore.

PROCESSORE



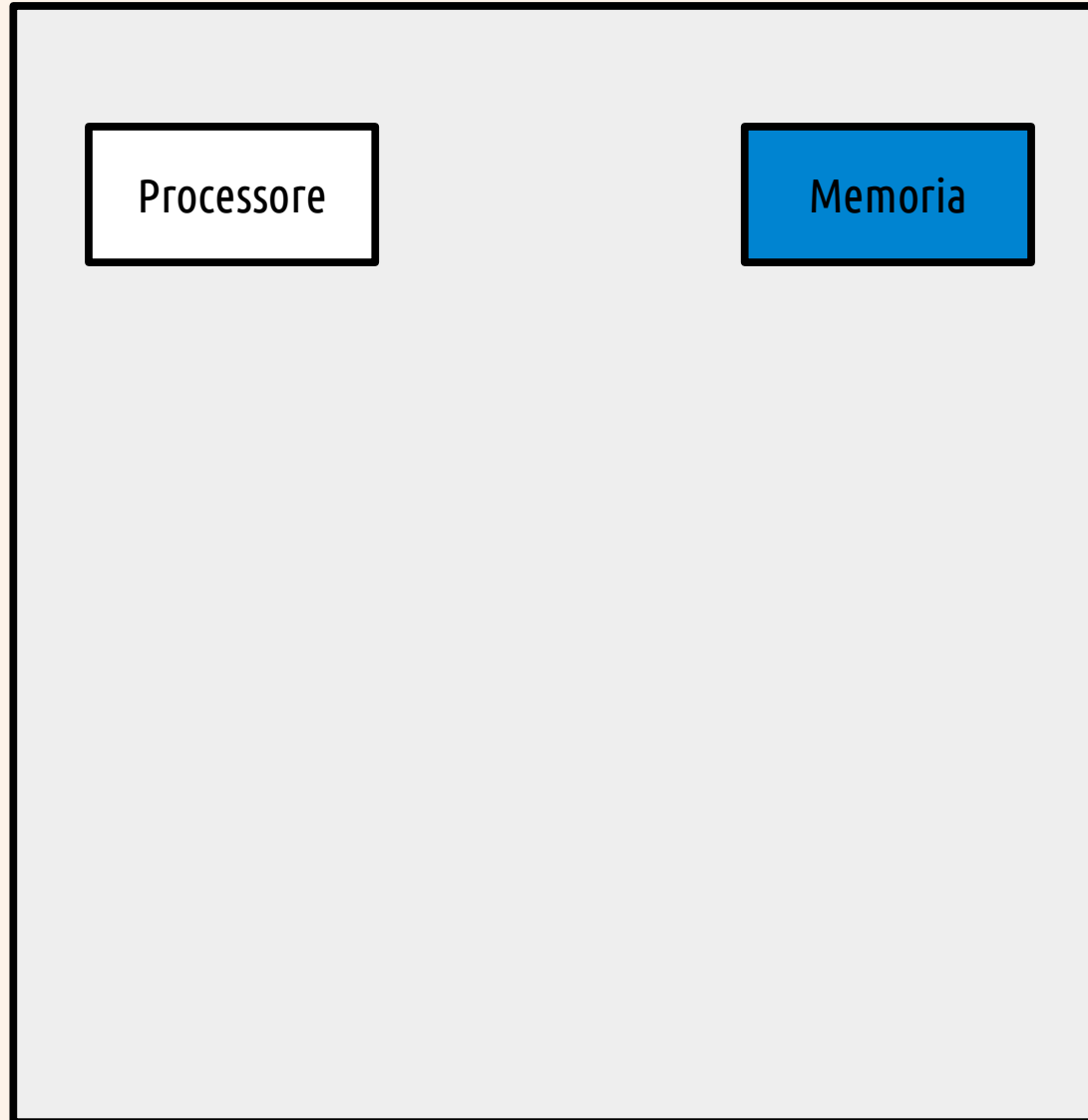
ARCHITETTURA



Processore

The diagram consists of a large light blue rectangle with a black border. Inside the top-left corner of this rectangle is a smaller white rectangle with a black border. The word 'Processore' is written in black text inside the white rectangle.

ARCHITETTURA



MEMORIA

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Contiene le istruzioni che costituiscono i programmi da eseguire e i dati da elaborare.

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Disponibile in quantità limitata.

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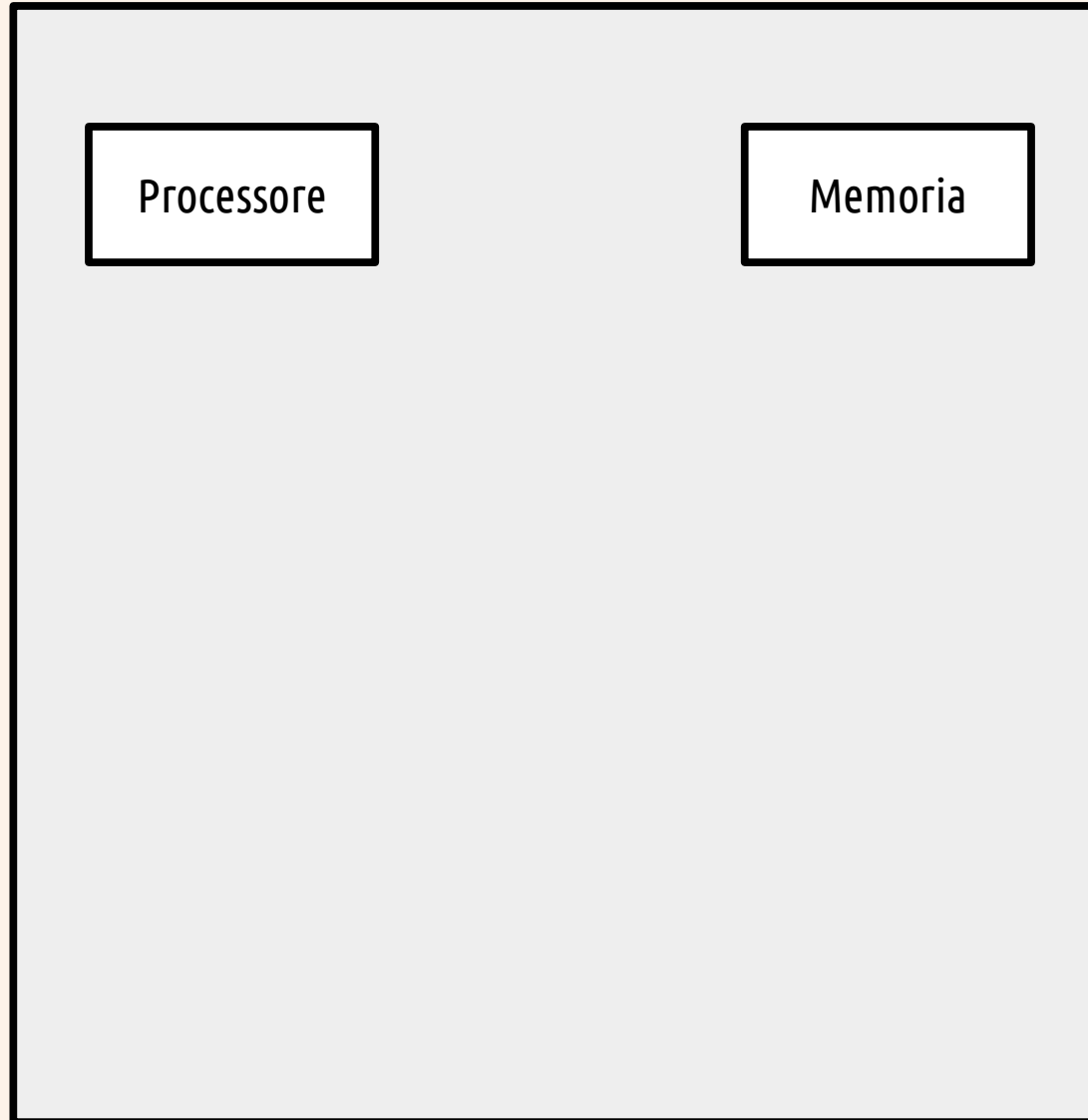
Disponibile in quantità limitata.

Perde il contenuto quando si spegne il calcolatore.

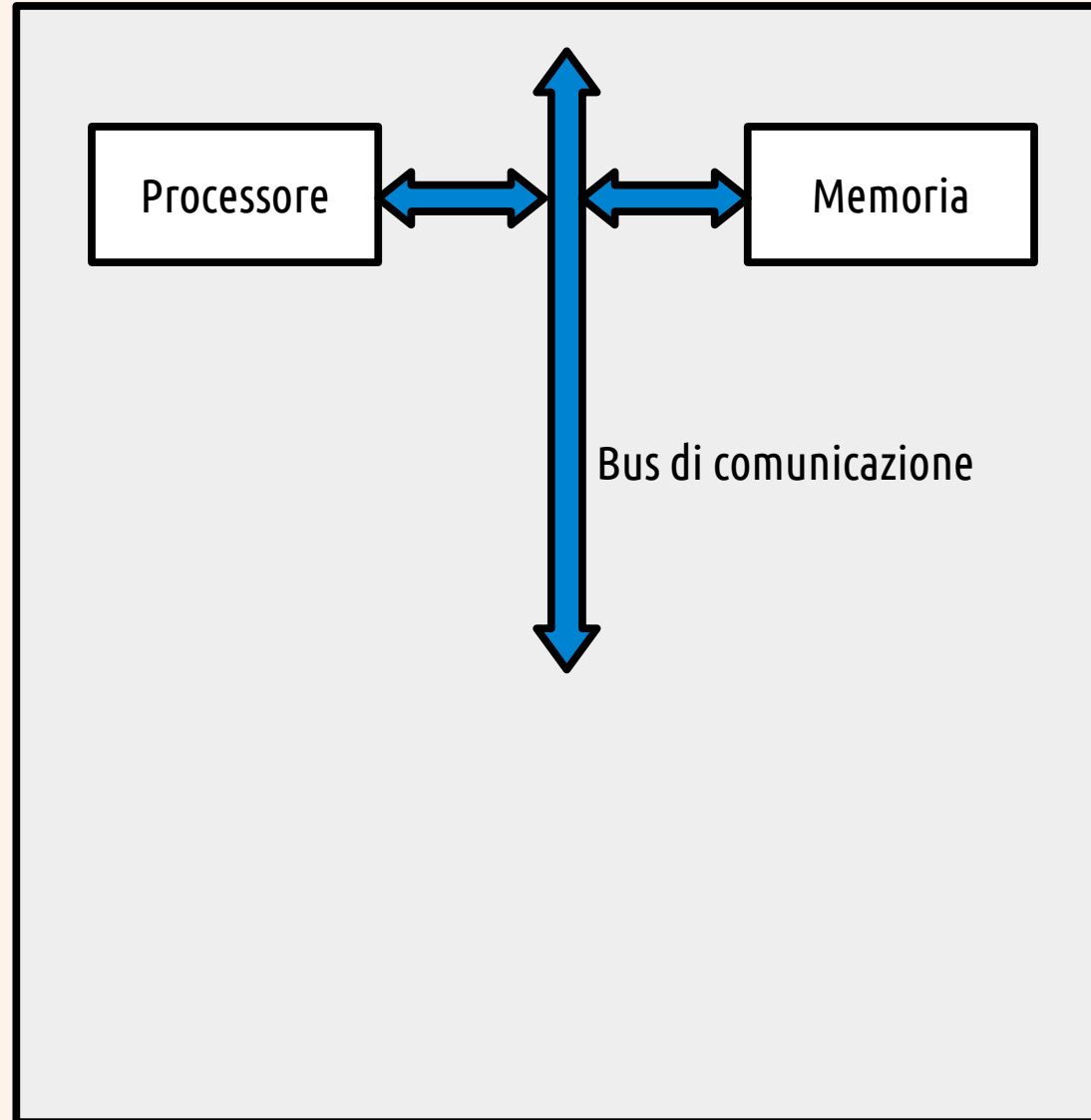
MEMORIA



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SCHEDA MADRE

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Ospita i componenti principali.

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Ospita i componenti principali.

Fornisce l'infrastruttura di comunicazione.

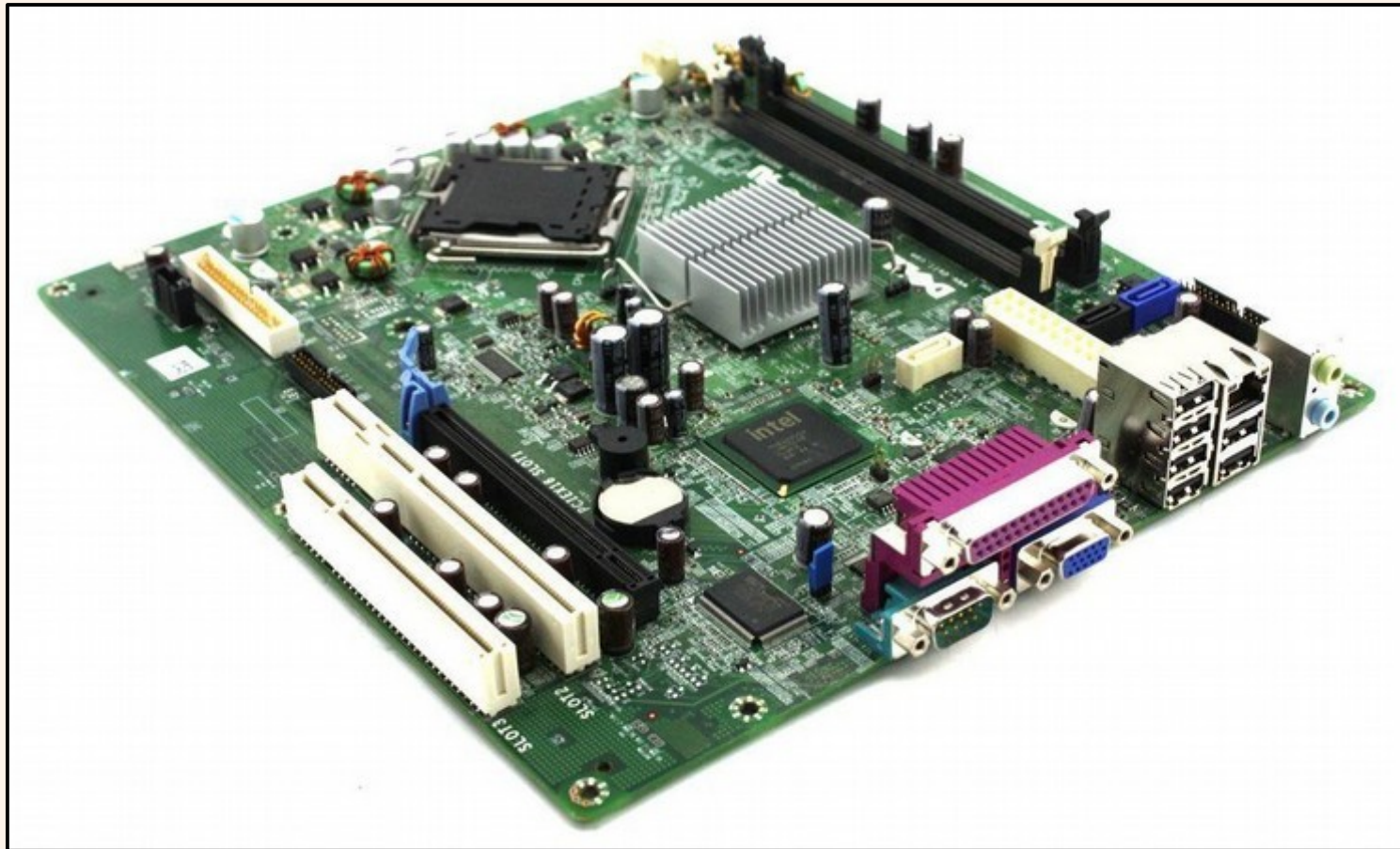
SCHEDA MADRE

Ospita i componenti principali.

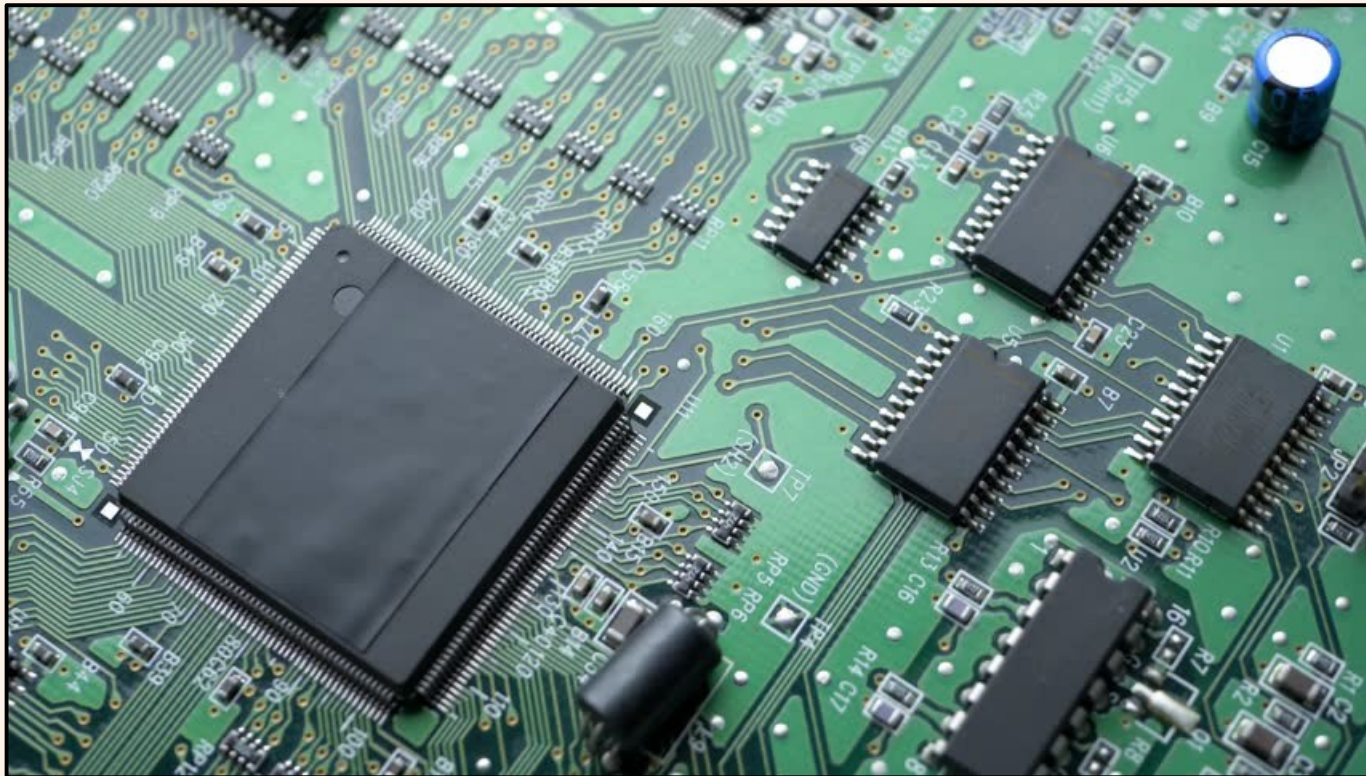
Fornisce l'infrastruttura di comunicazione.

Offre punti di espansione del sistema.

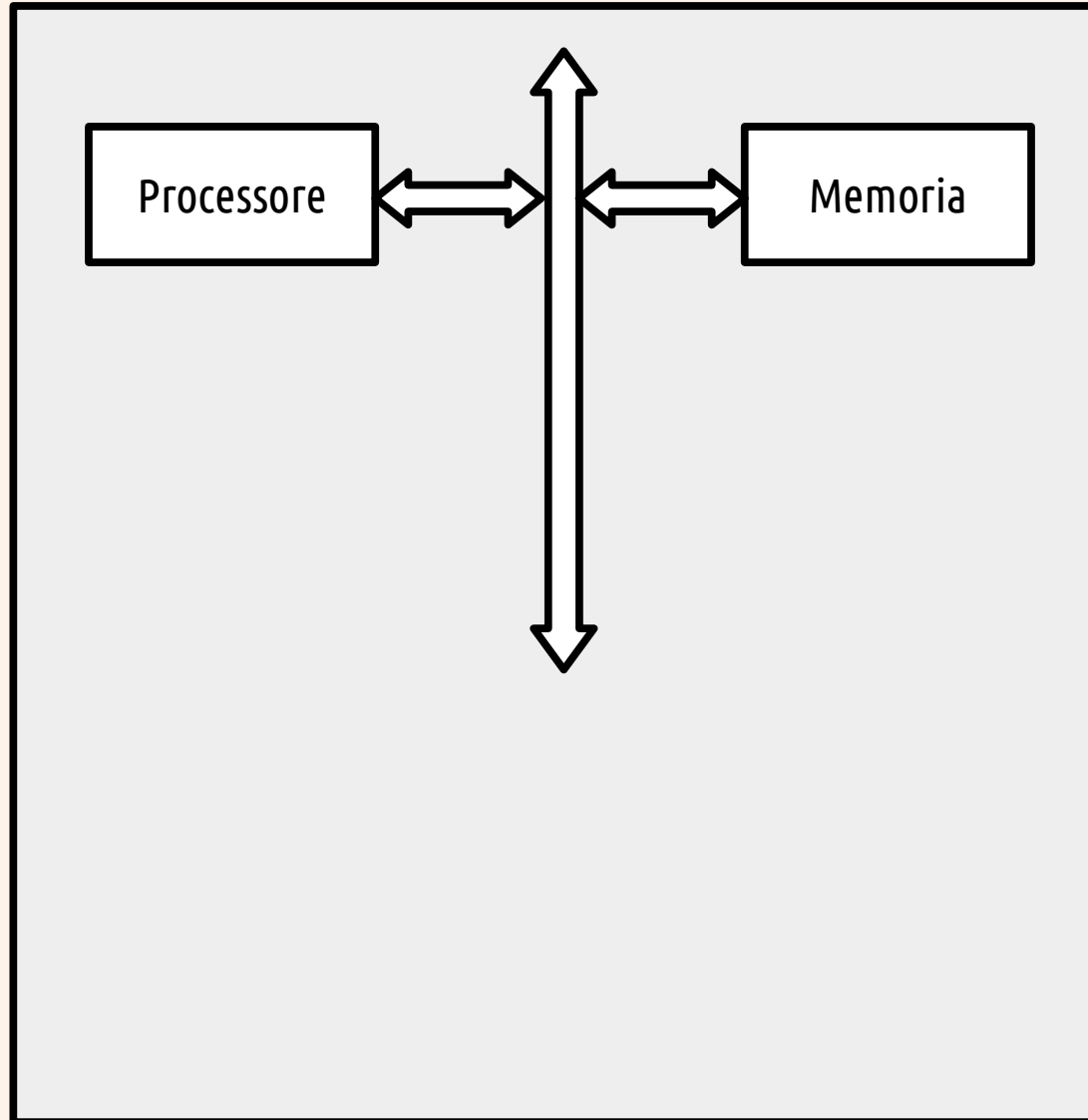
SCHEDA MADRE



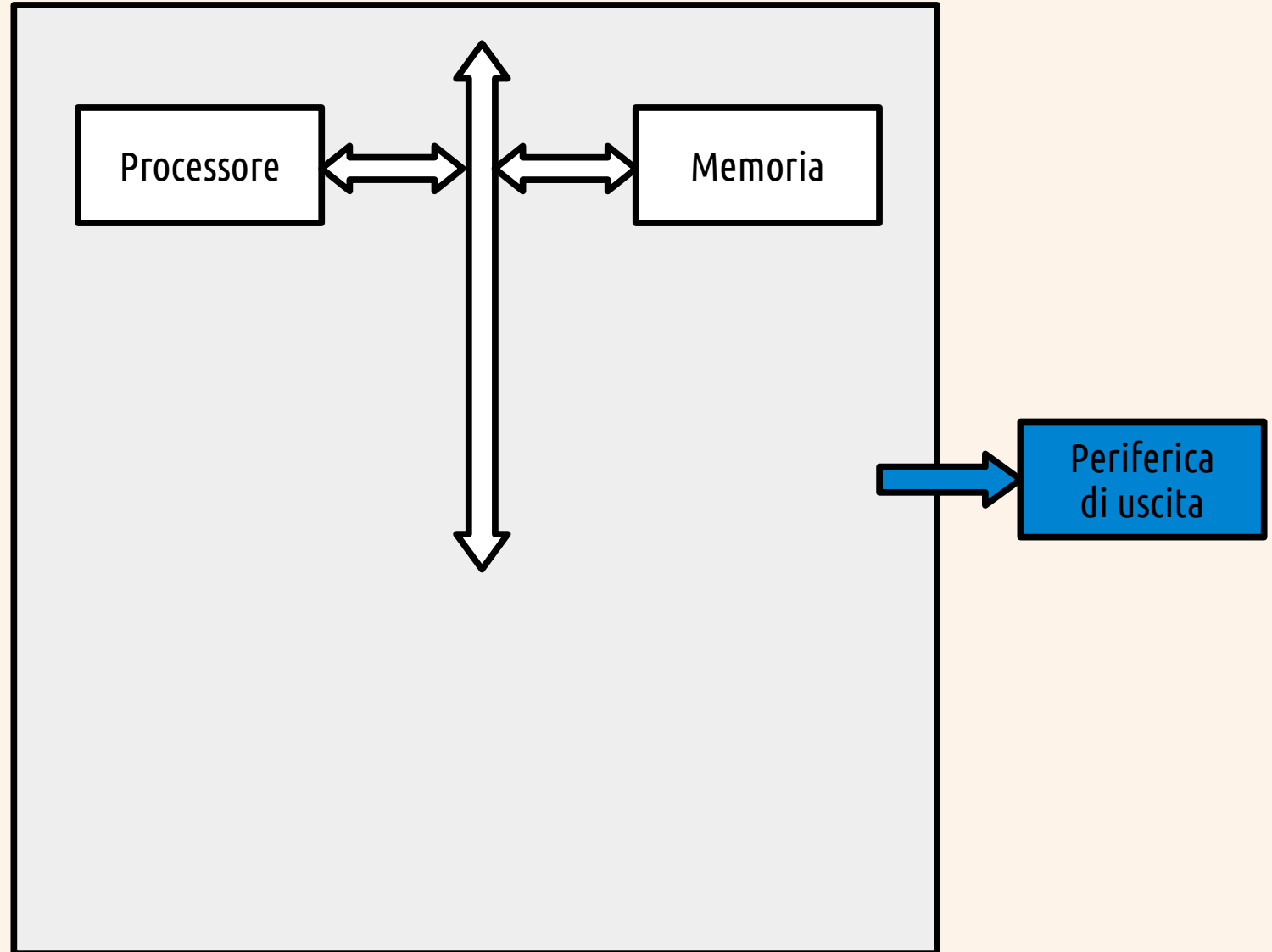
BUS



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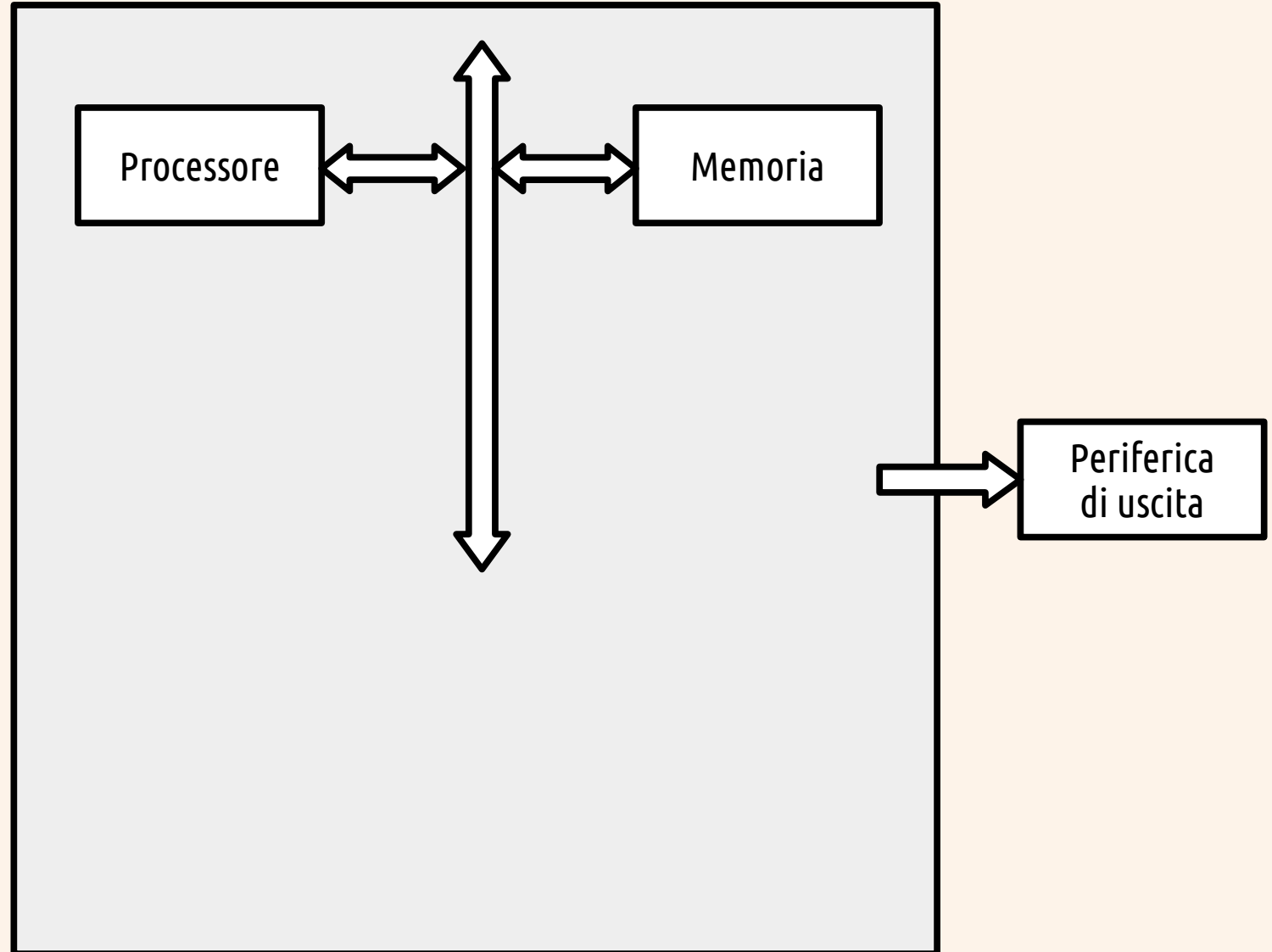
PERIFERICA D'USCITA

Apparato per la **ricezione**
di dati dall'unità centrale

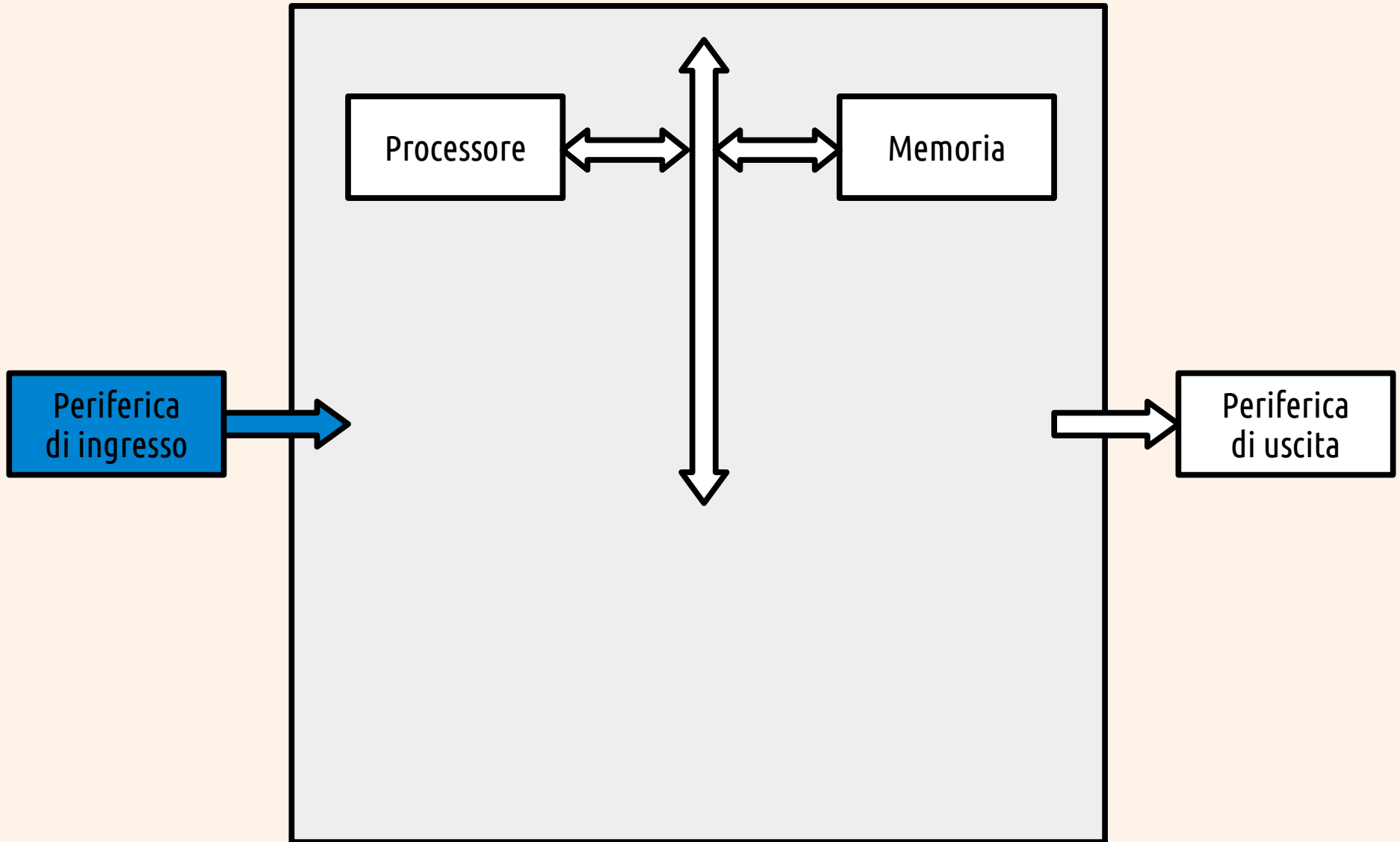
PERIFERICA D'USCITA



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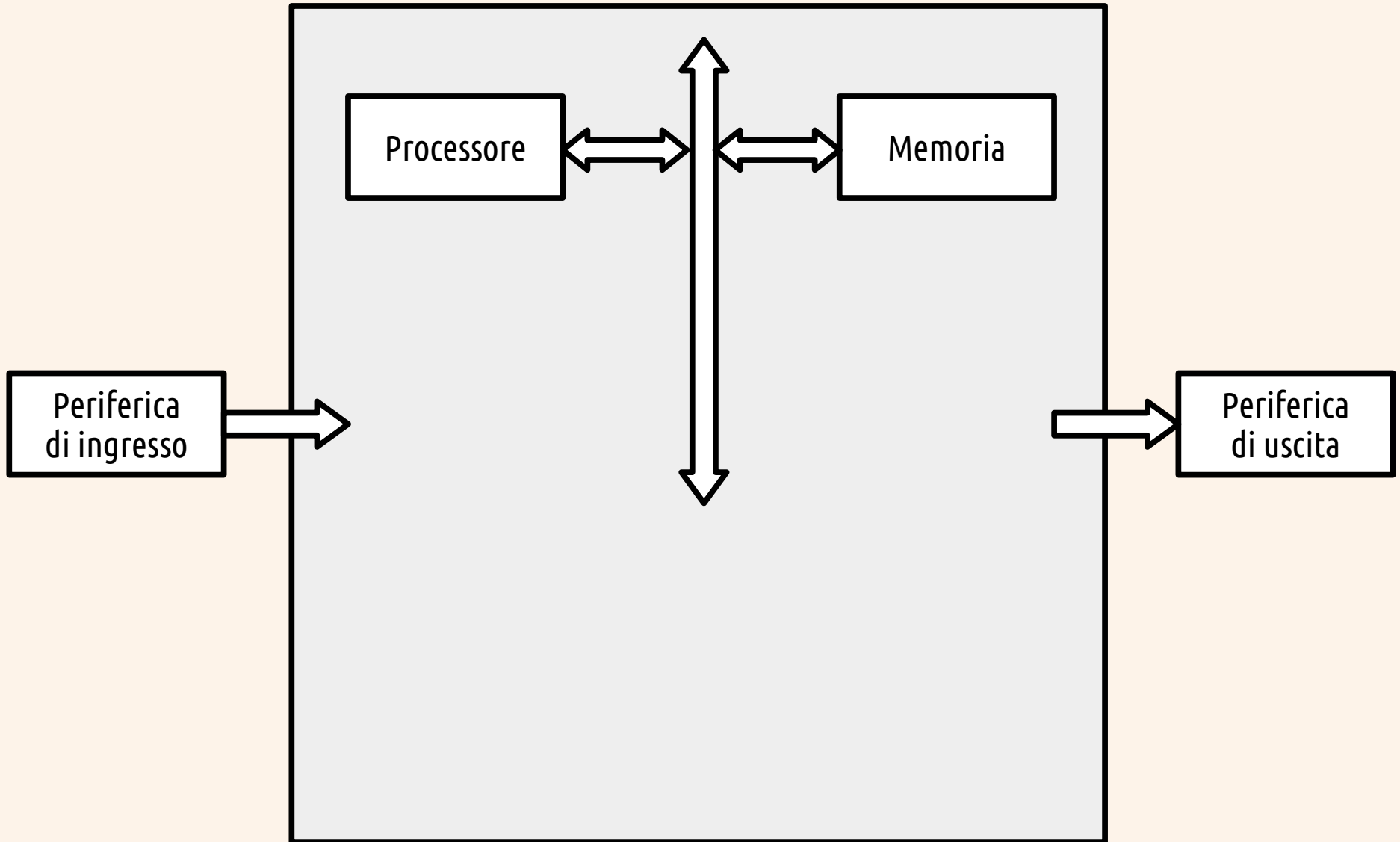
PERIFERICA D'INGRESSO

Apparato per l'invio
di dati all'unità centrale

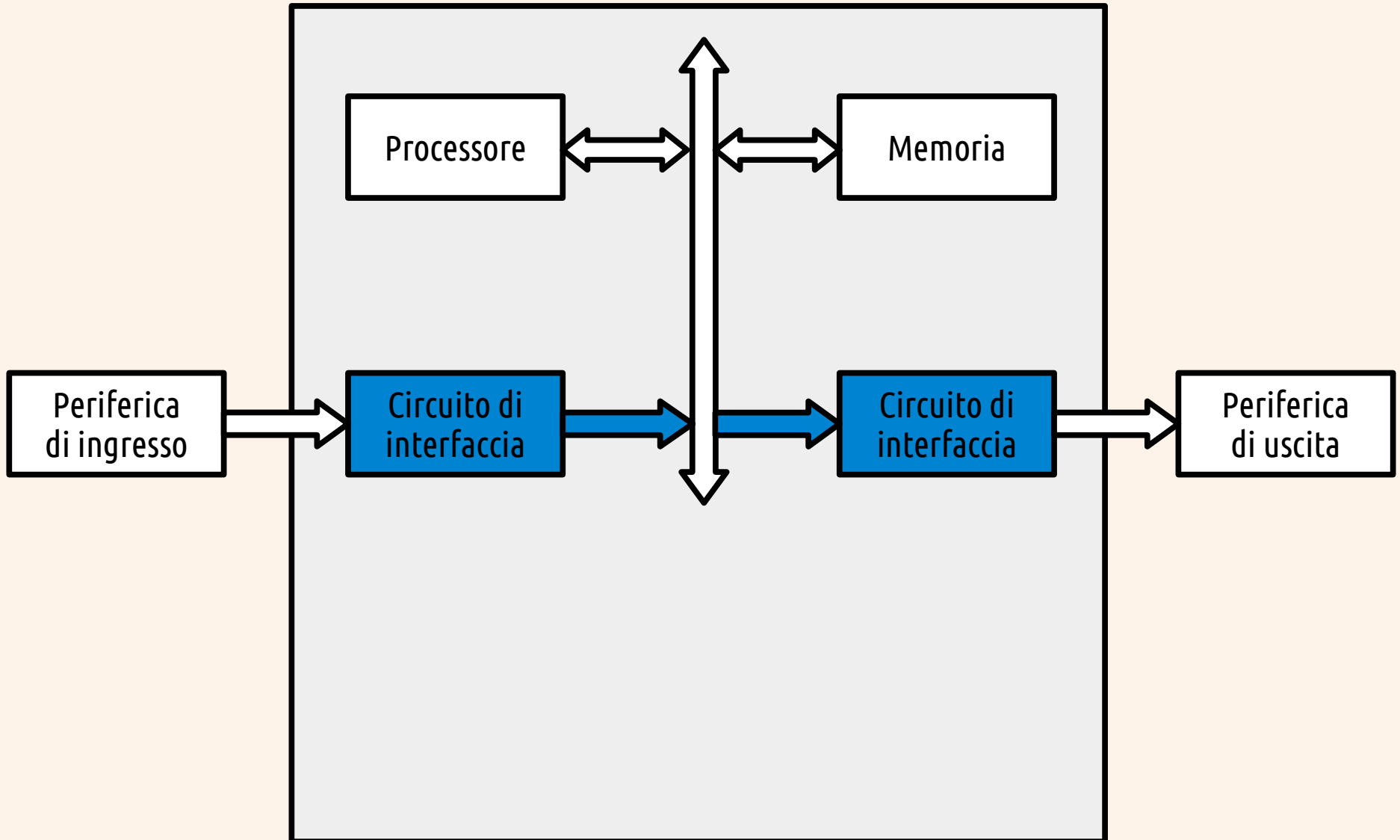
PERIFERICA D'INGRESSO



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CIRCUITO DI INTERFACCIA

CIRCUITO DI INTERFACCIA

Detto anche **controller**.

CIRCUITO DI INTERFACCIA

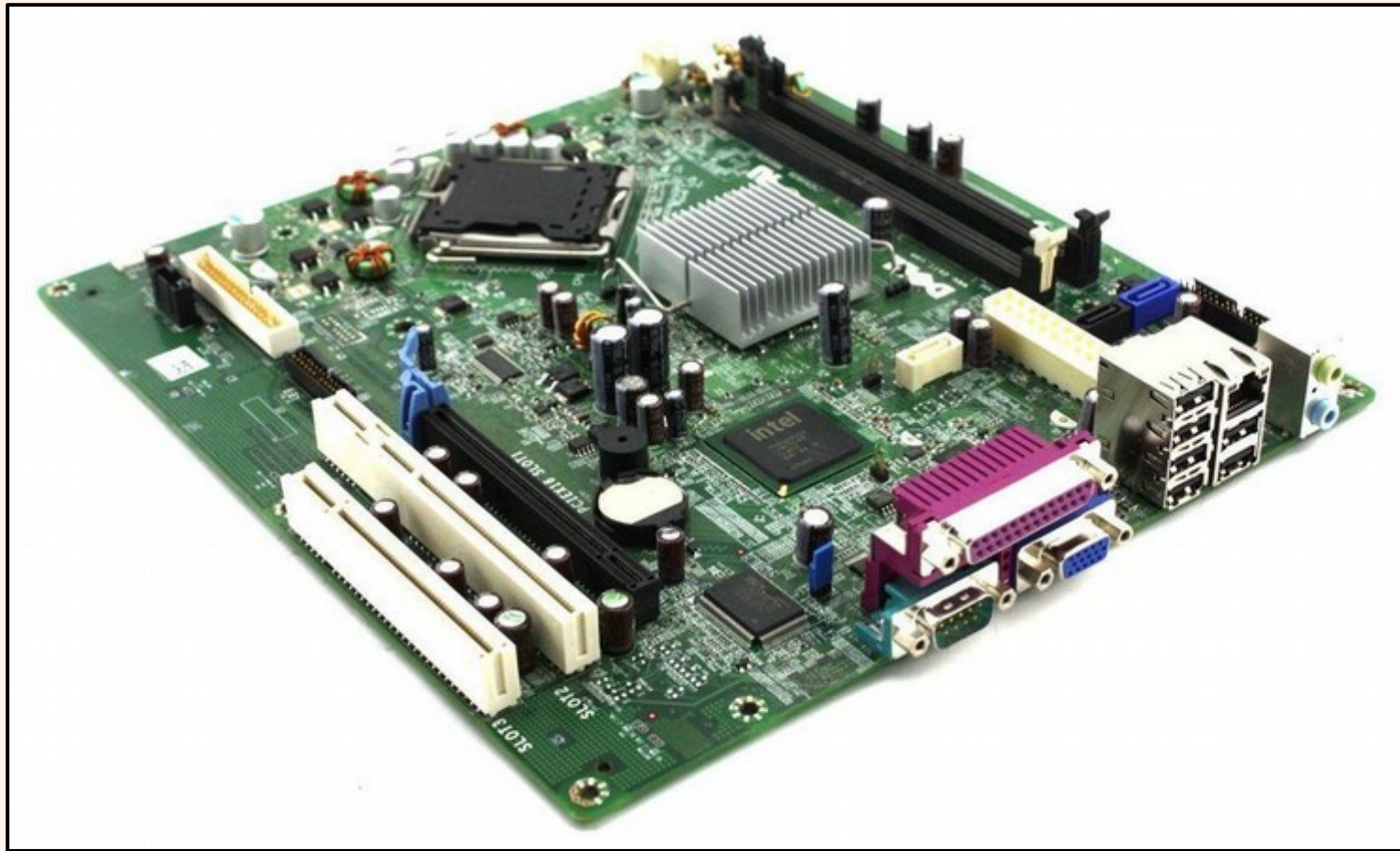
Detto anche **controller**.

Consente il colloquio tra CPU e periferica
Standard di riferimento: USB, HDMI, SATA, ...

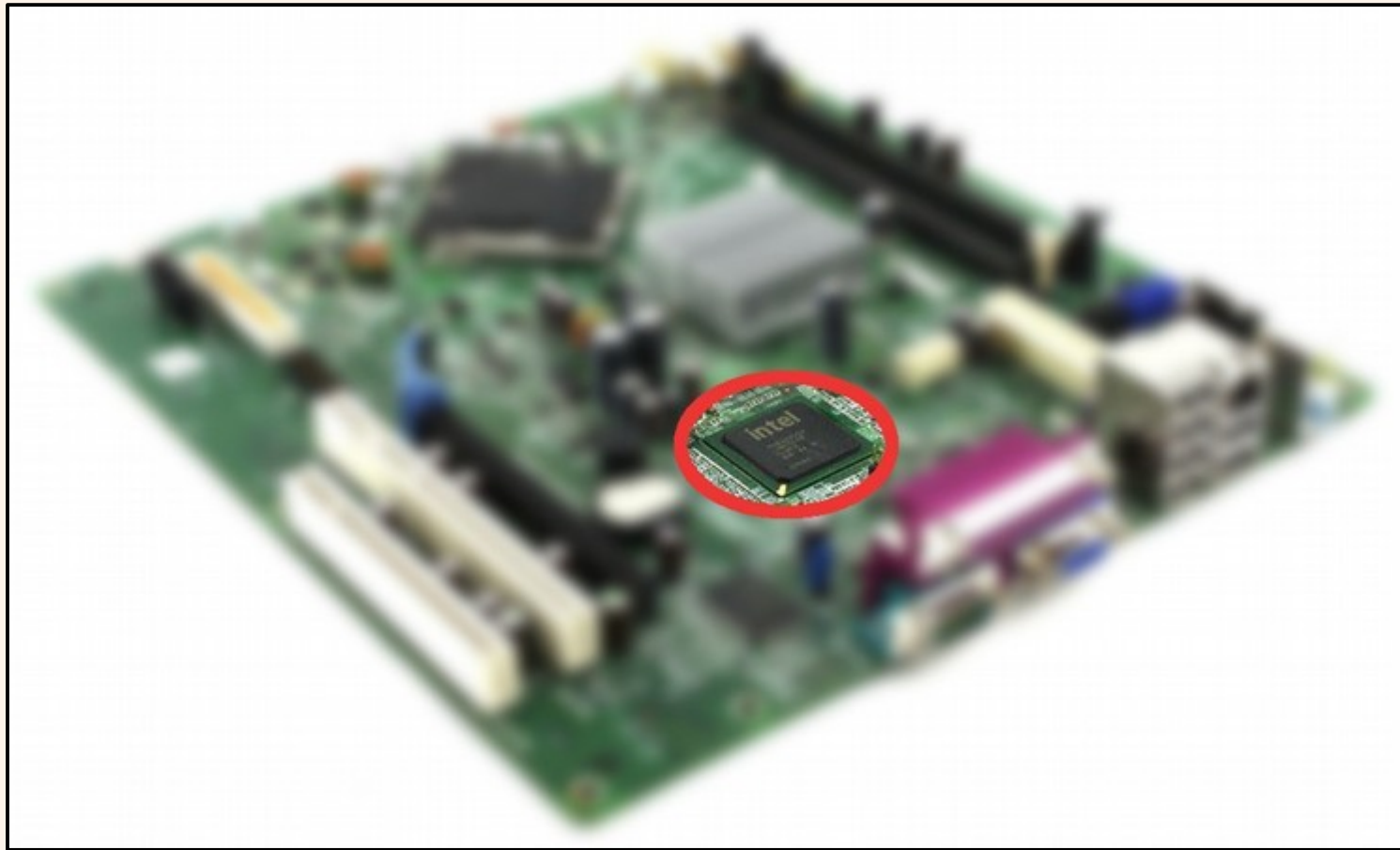
CIRCUITO DI INTERFACCIA



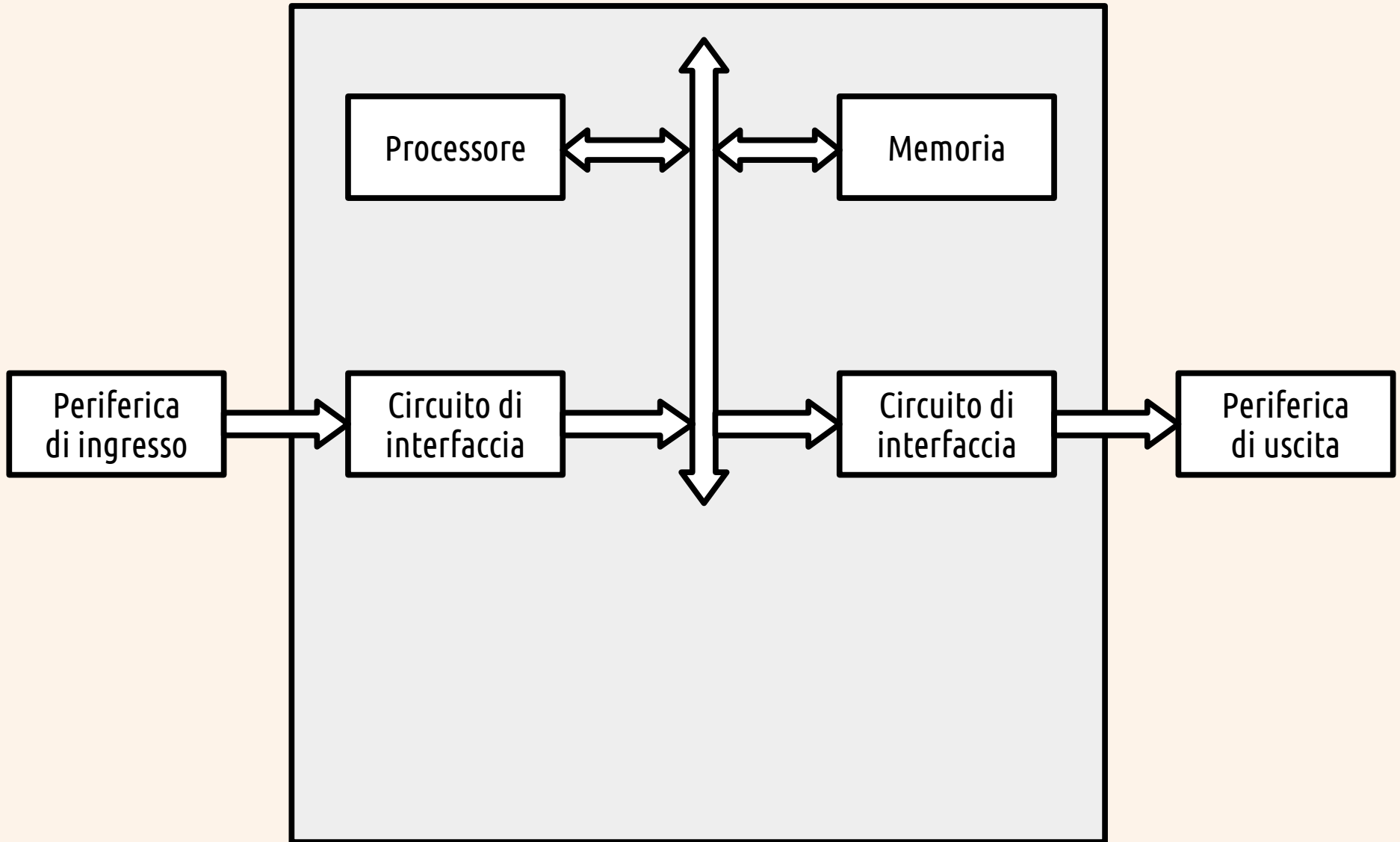
CIRCUITO DI INTERFACCIA



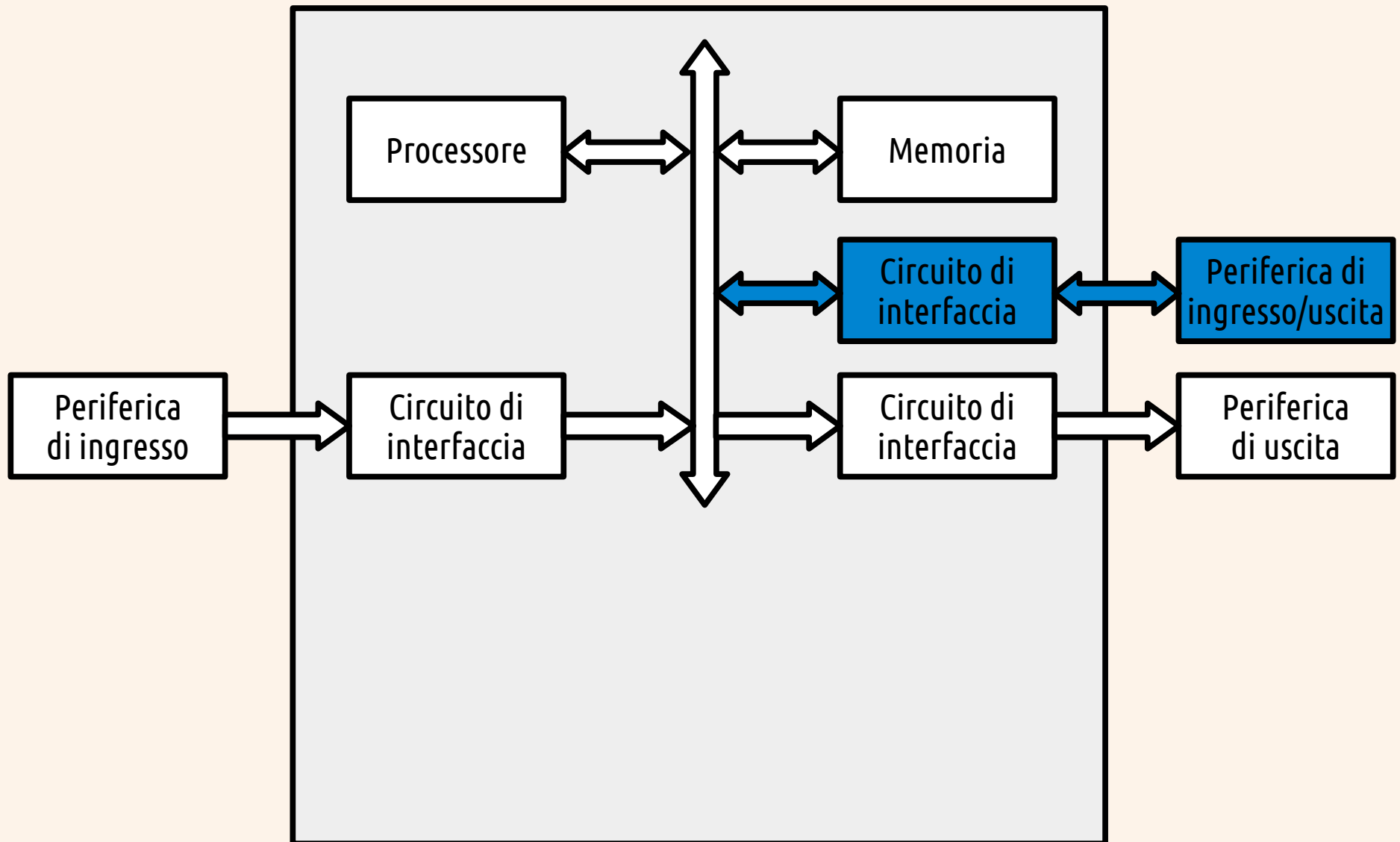
CIRCUITO DI INTERFACCIA



ARCHITETTURA



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ALTRE PERIFERICHE



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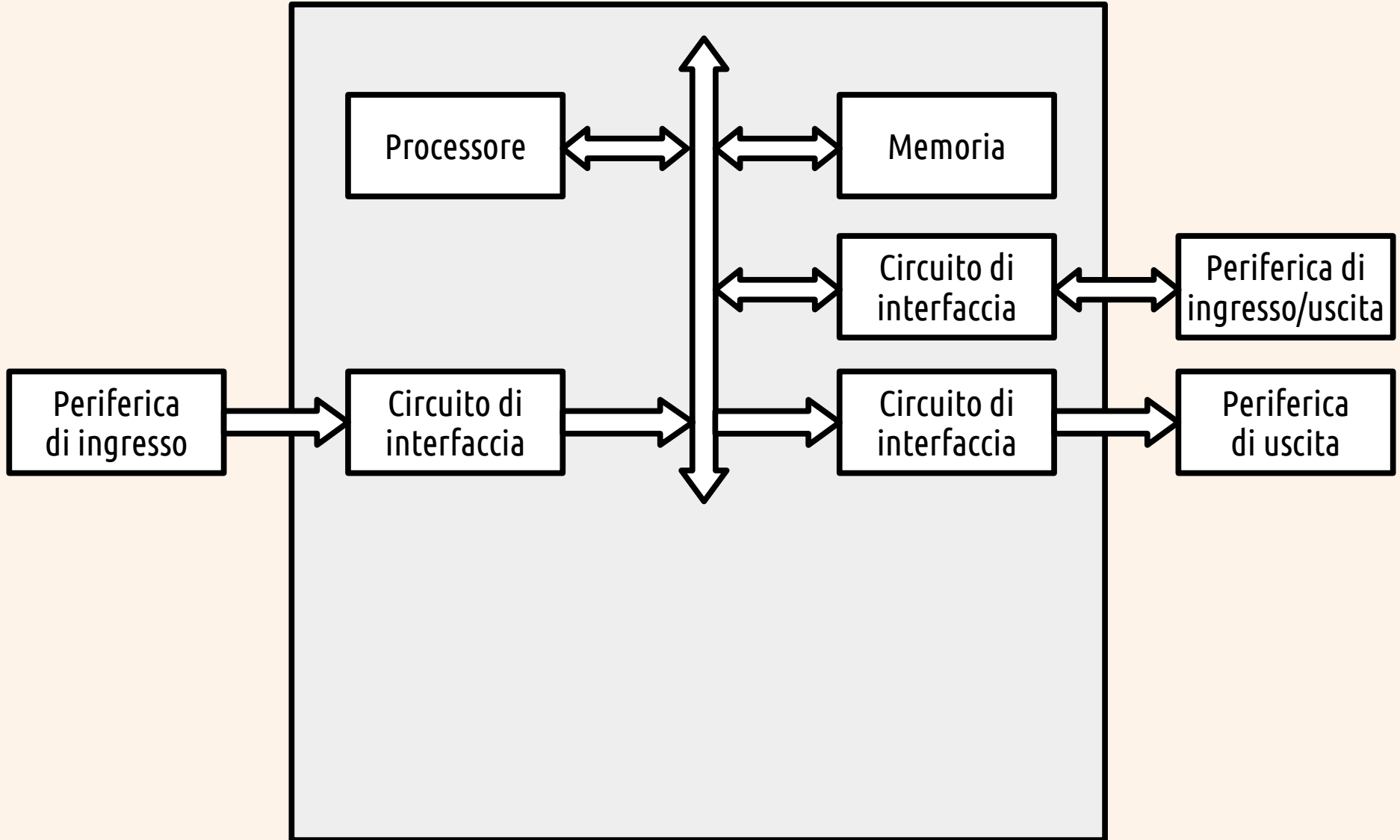
ALTRE PERIFERICHE



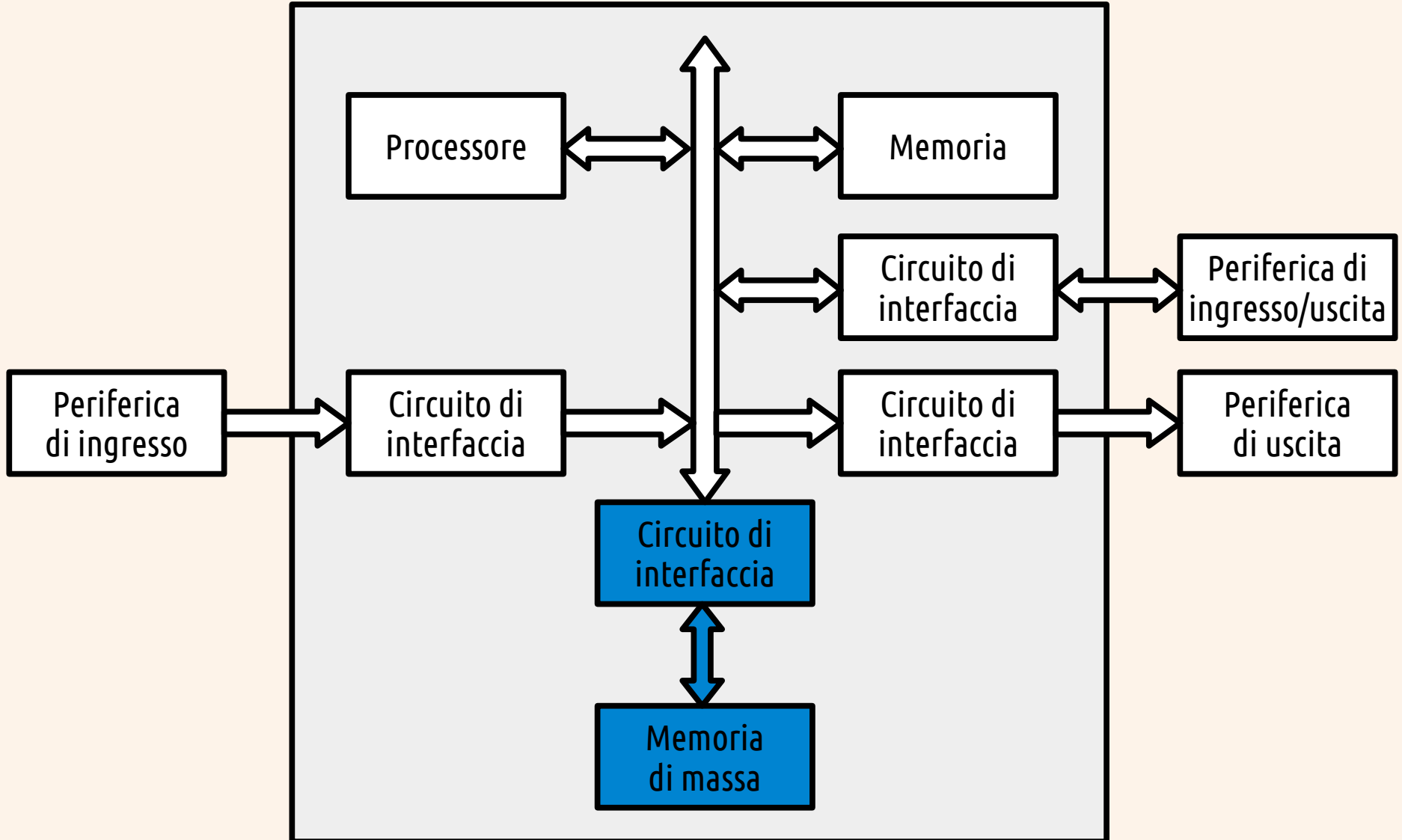
ALTRE PERIFERICHE



ARCHITETTURA



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MEMORIA DI MASSA

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Mantiene i dati anche a calcolatore spento.

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Molto lenta rispetto alla memoria centrale.

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Molto lenta rispetto alla memoria centrale.

Disponibile in quantità praticamente illimitata.

MEMORIE DI MASSA



MEMORIE DI MASSA



MEMORIE DI MASSA



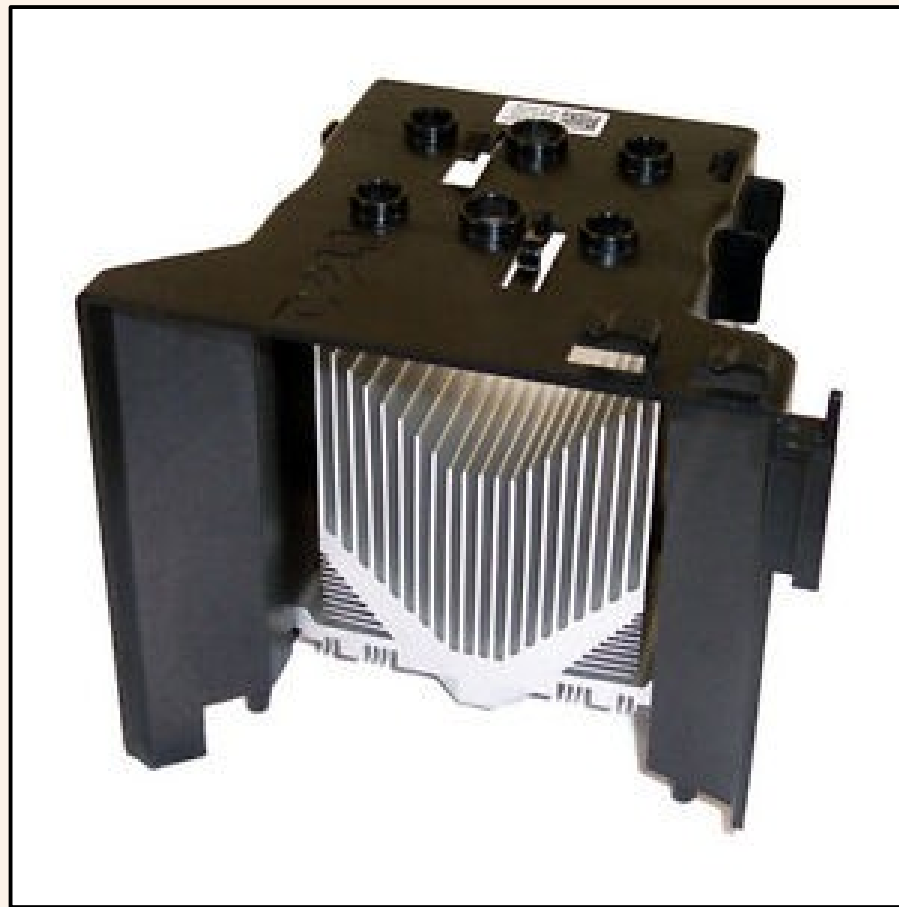
MEMORIE DI MASSA



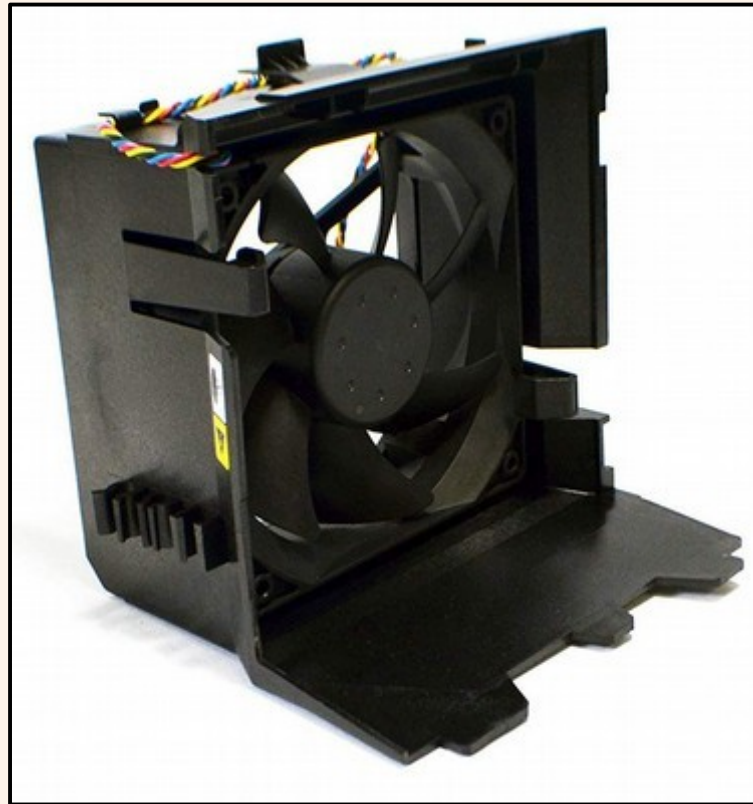
ALTRI ACCESSORI



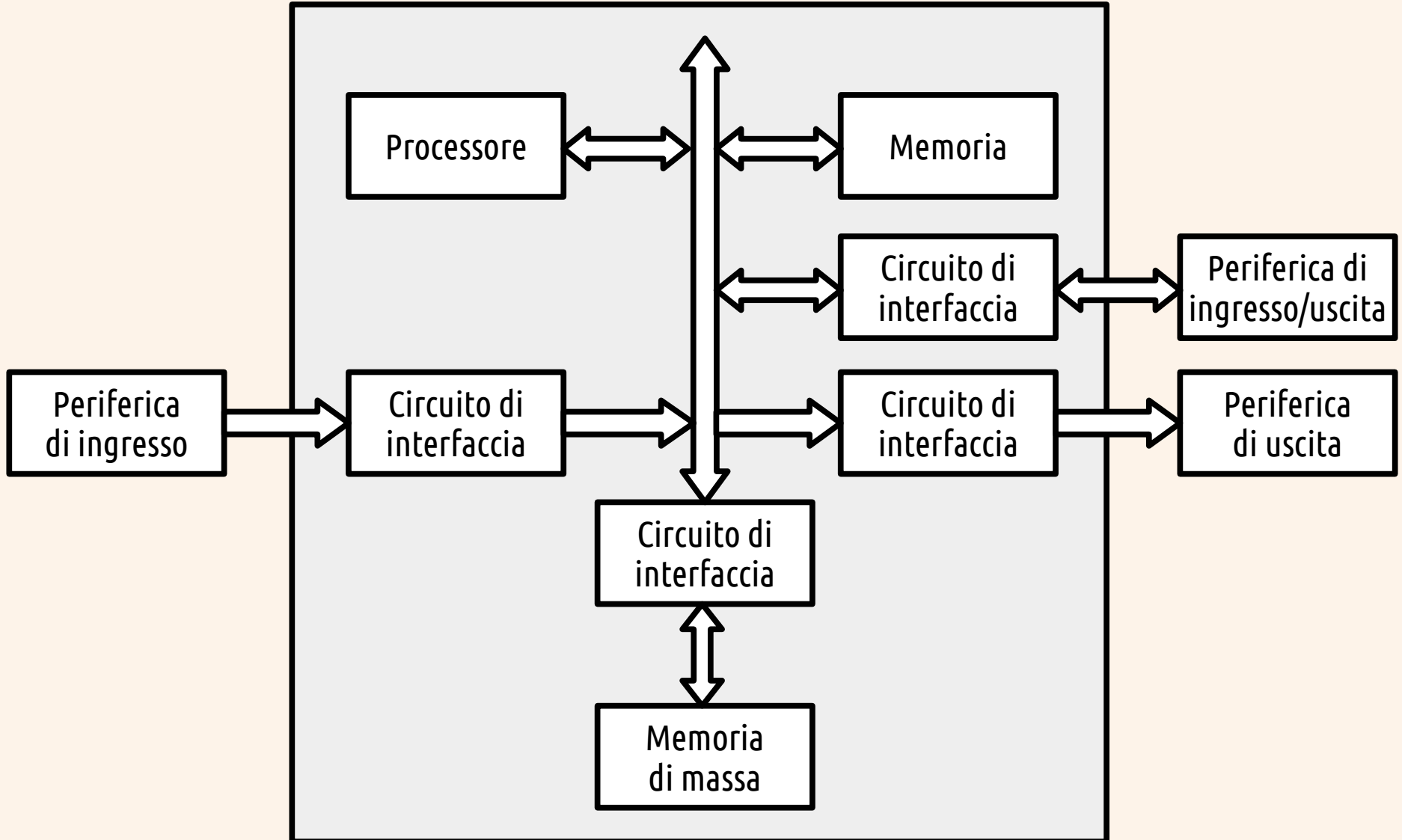
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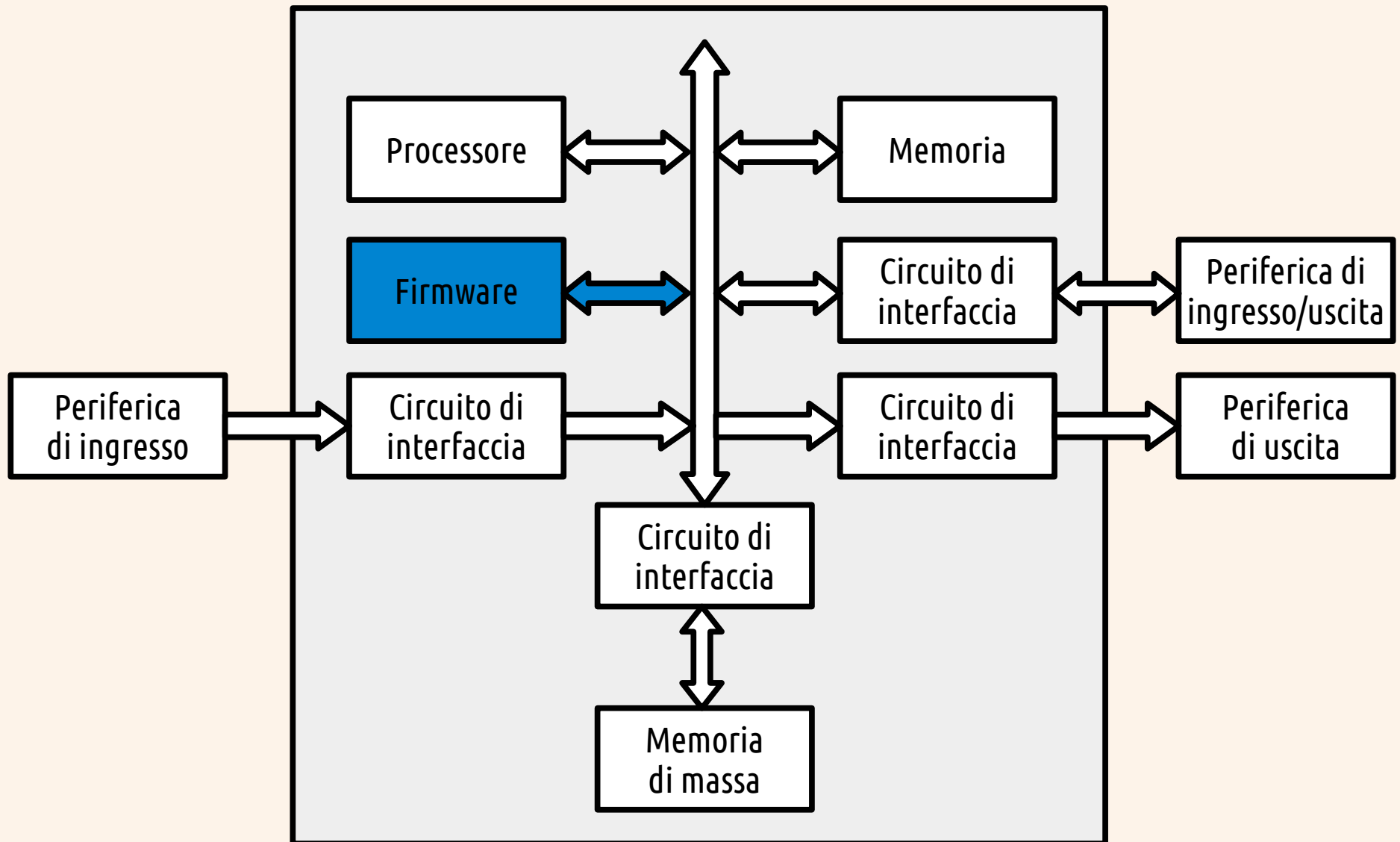
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