

UNIVERSITÀ DELLA CALABRIA

Corso di Laurea in Ingegneria Informatica

Dipartimento di Informatica Modellistica Elettronica e
Sistemistica

TESI di LAUREA

Macchina Virtuale

CALCULIST

Candidato

GIUSEPPE SOTTILE

Relatore

Prof. DOMENICO SACCA'

Correlatore

Ing. FABIO FASSETTI

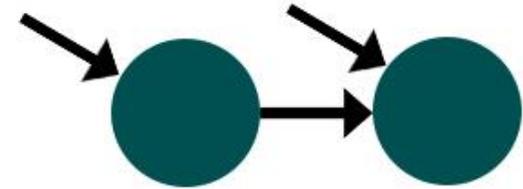
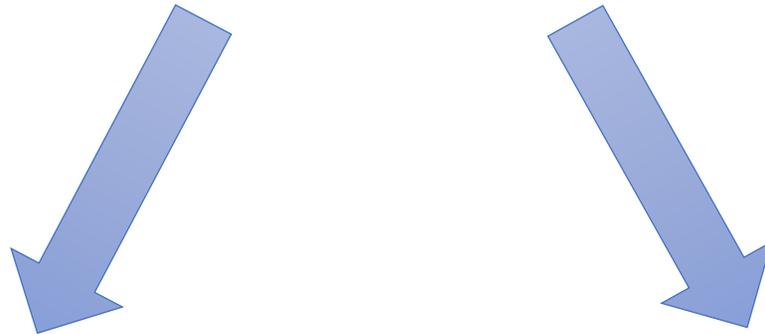
A.A. 2016/17

CALCULIST

VIRTUAL MACHINE



CALCULATOR



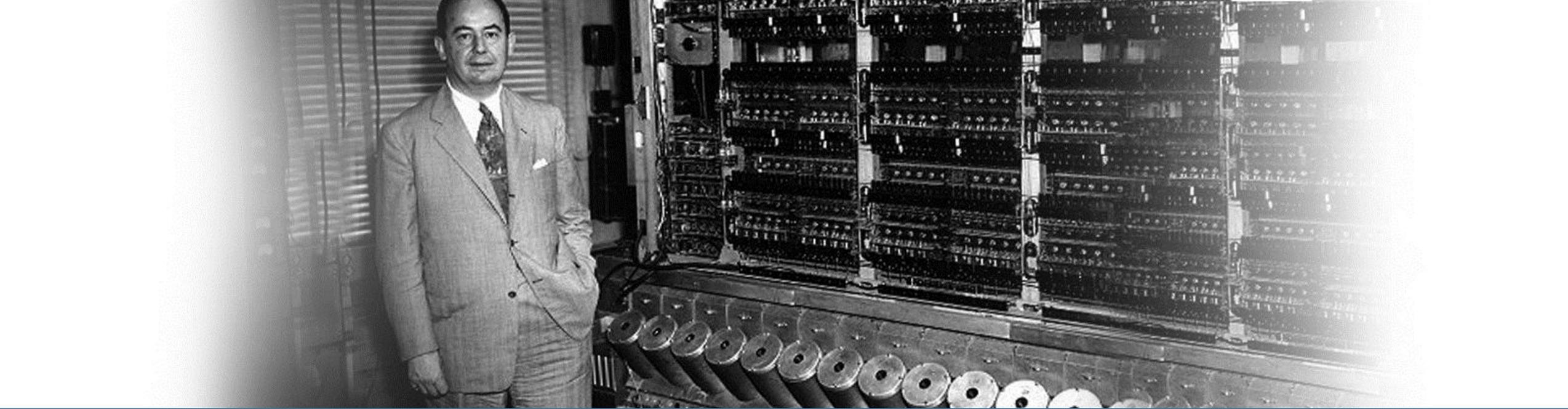
LIST

SCOPO DELLA TESI

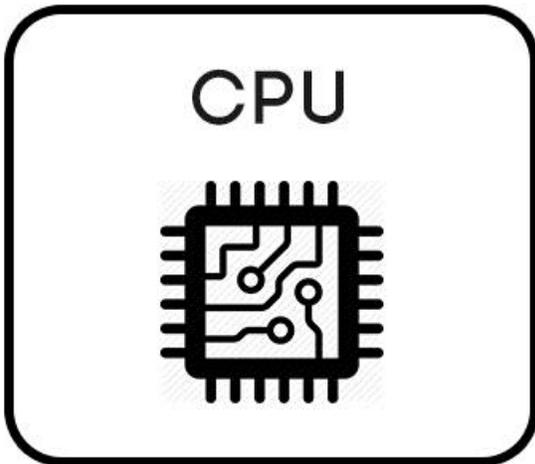
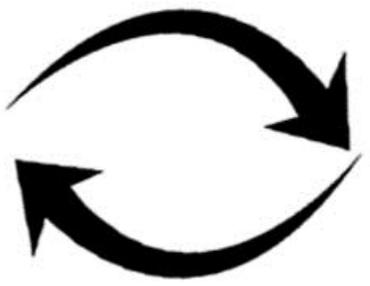
- Descrizione Modello Architettuale
- Analisi Istruzioni

TIPOLOGIE DI ARCHITETTURA

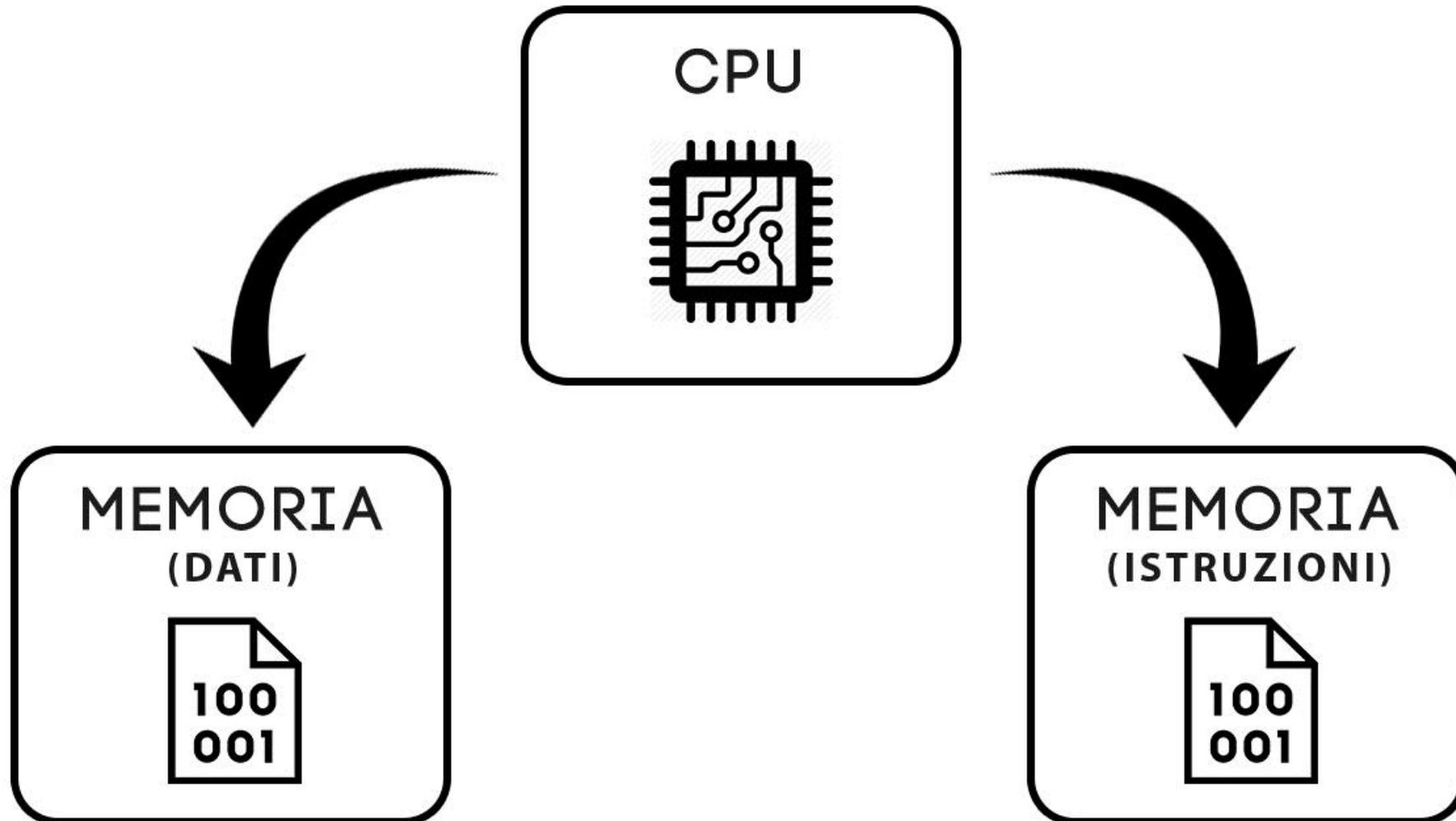
- Architettura di Von Neumann
- Architettura Harvard



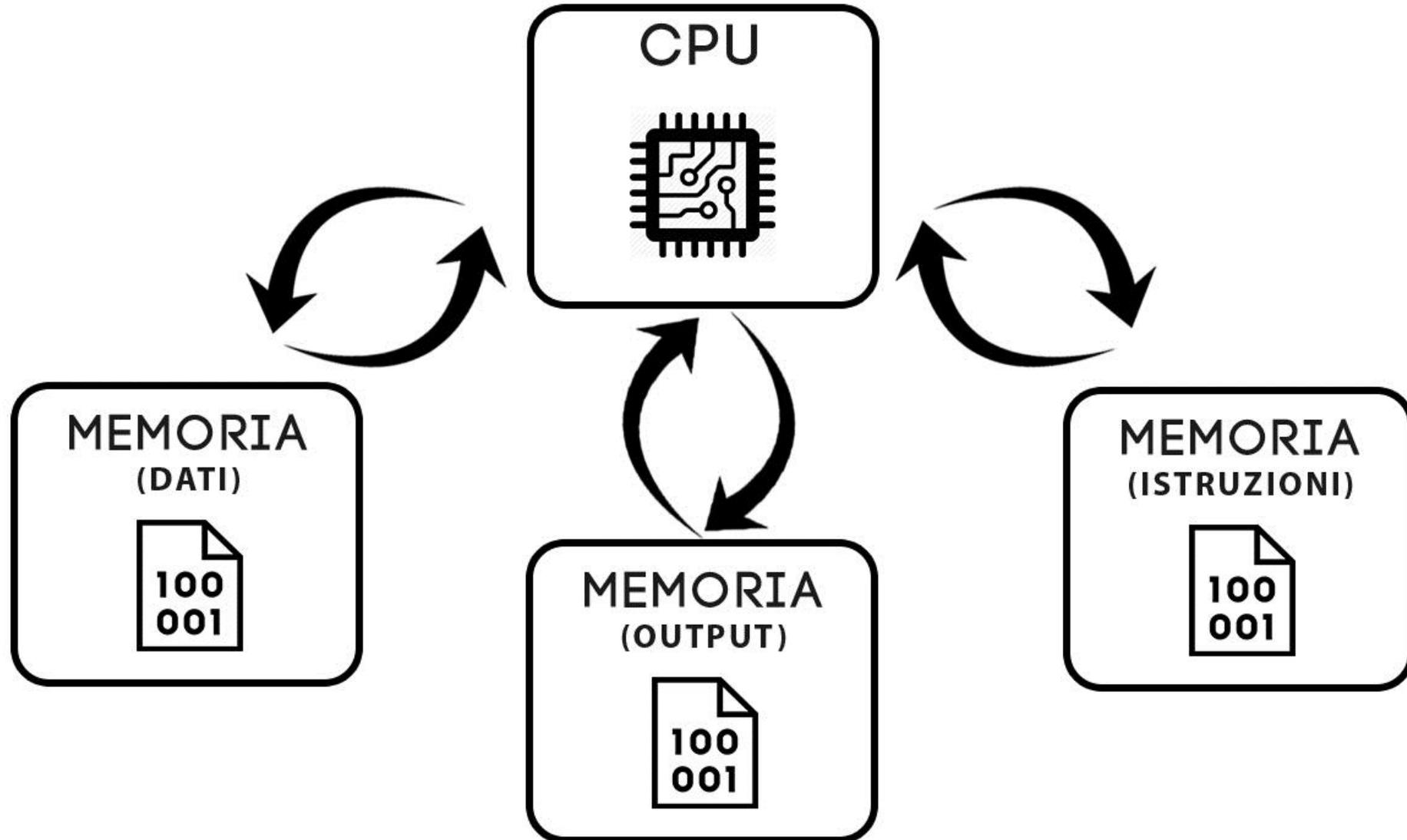
ARCHITETTURA DI VON NEUMANN



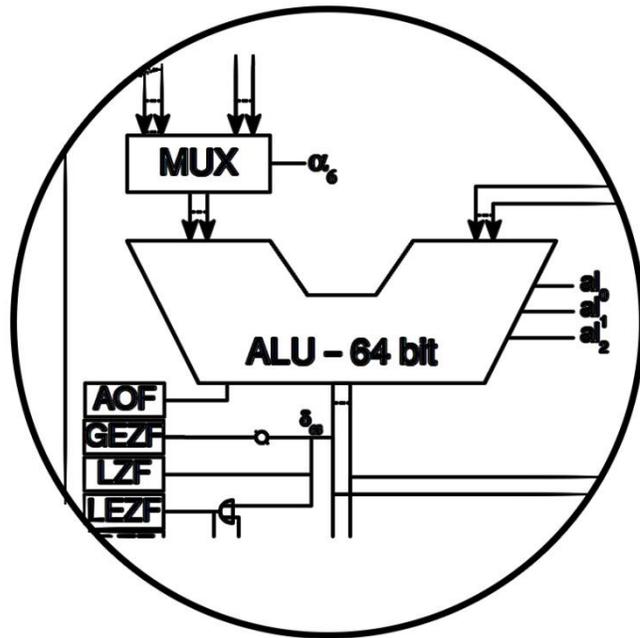
ARCHITETTURA HARVARD



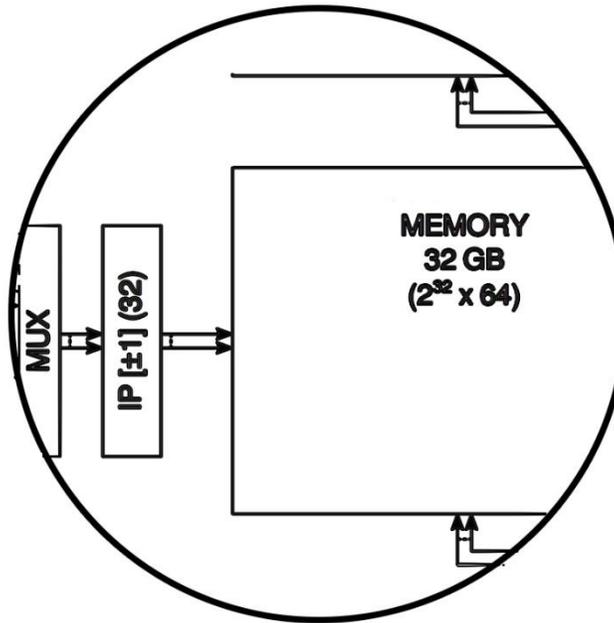
ARCHITETTURA CALCULIST



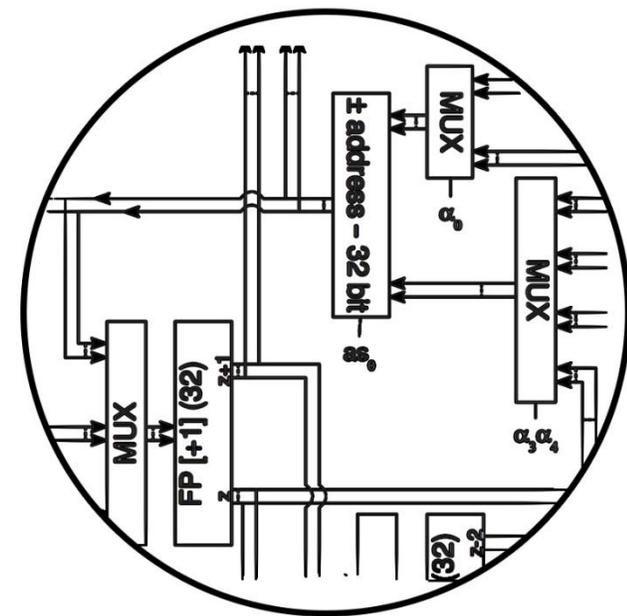
COMPONENTI FONDAMENTALI



ALU
[64 bit]

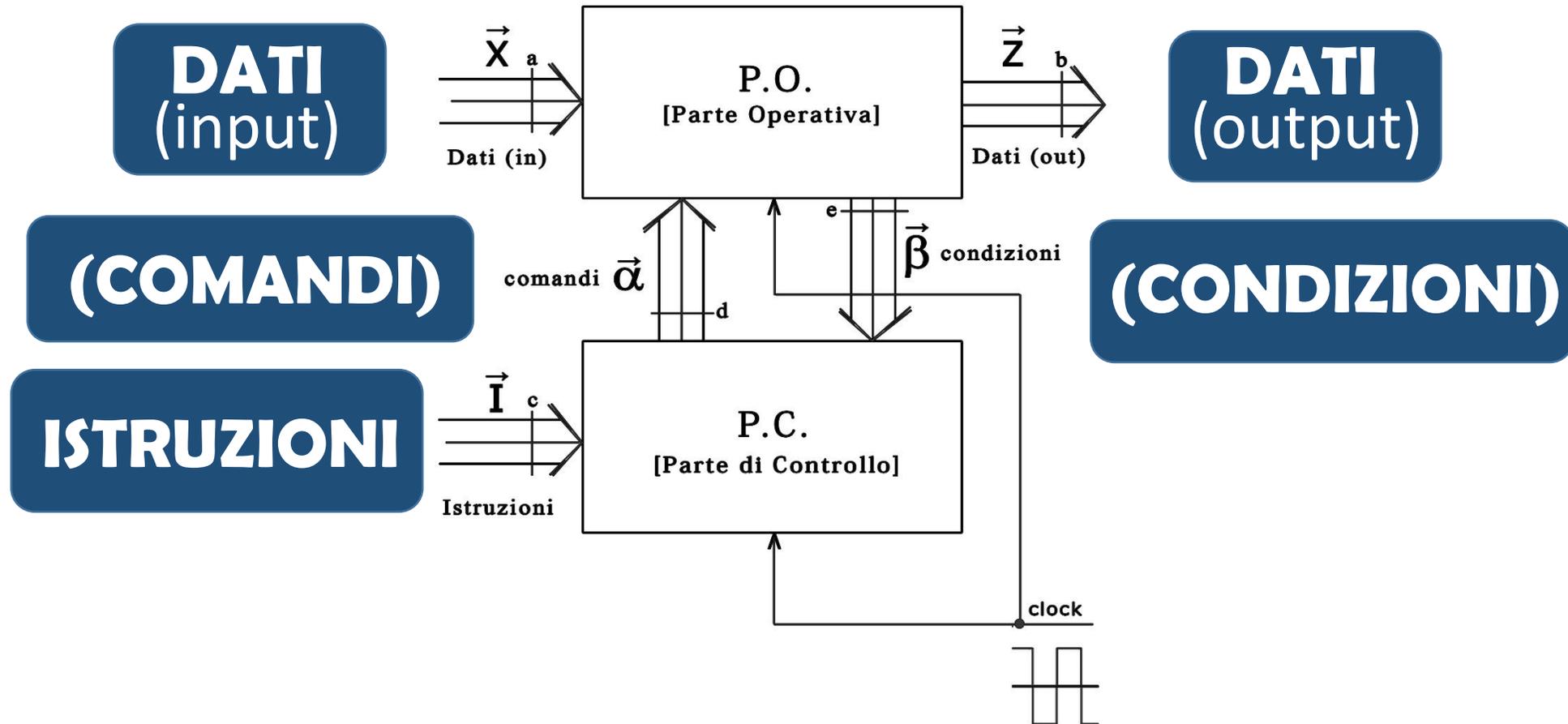


MEMORIA
[32 GB]



REGISTRI
[32 - 64 bit]

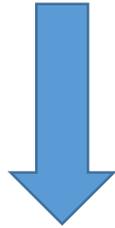
PARTE OPERATIVA E PARTE DI CONTROLLO



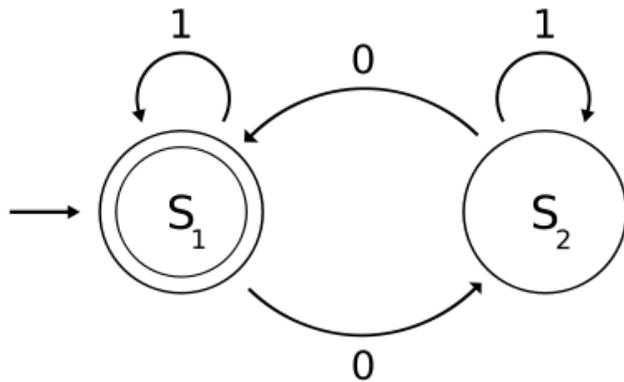
ANALISI DELLE ISTRUZIONI

TIPOLOGIE DI CONTROLLO

**CONTROLLO
CABLATO**



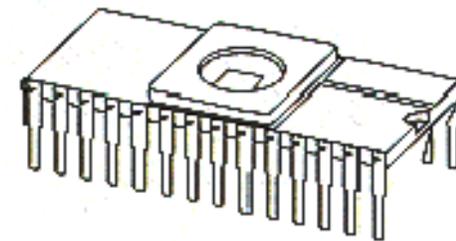
AUTOMA DI STATO



**CONTROLLO
MICROPROGRAMMATO**

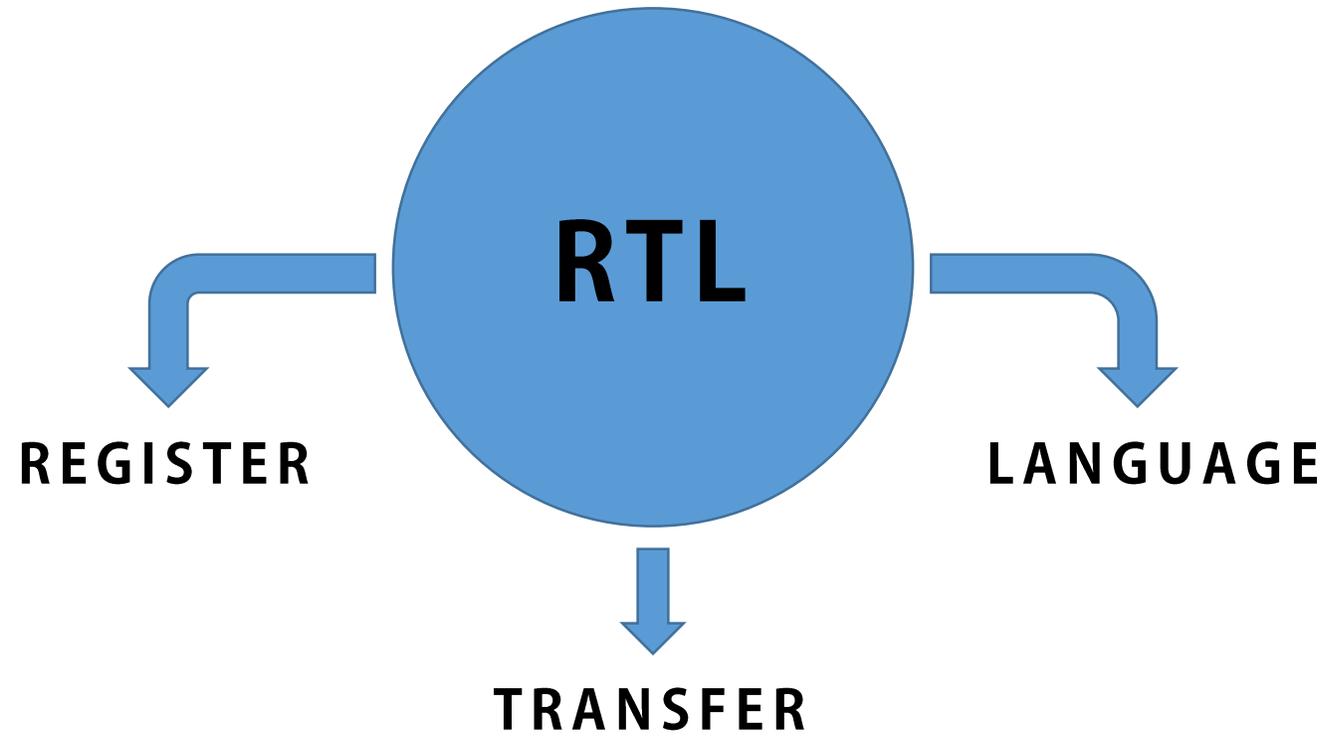


MICROPROGRAMMA

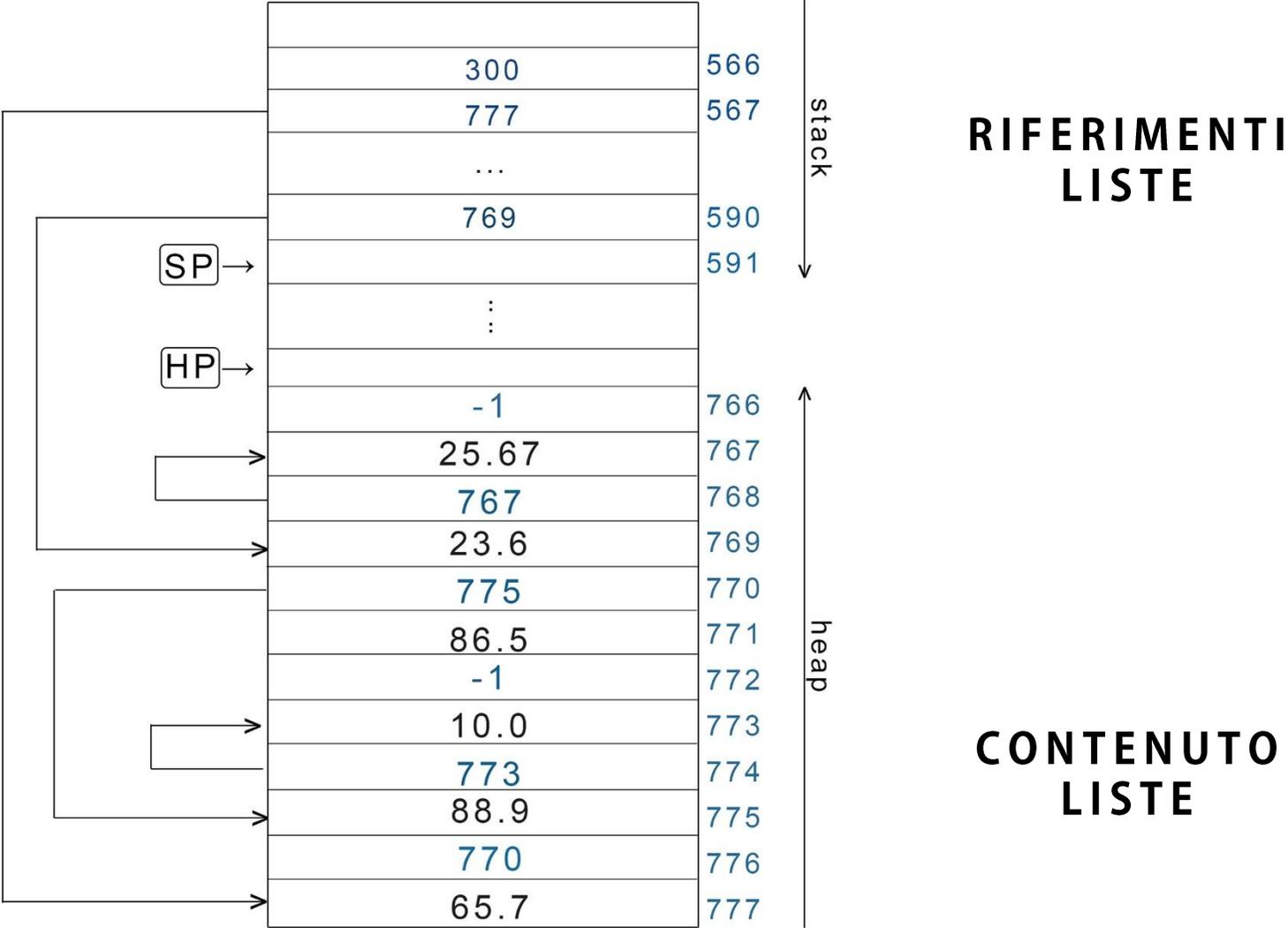


ANALISI DELLE ISTRUZIONI

LINGUAGGIO RTL



MODELLO A STACK (memoria dati)



ISTRUZIONE HLIST

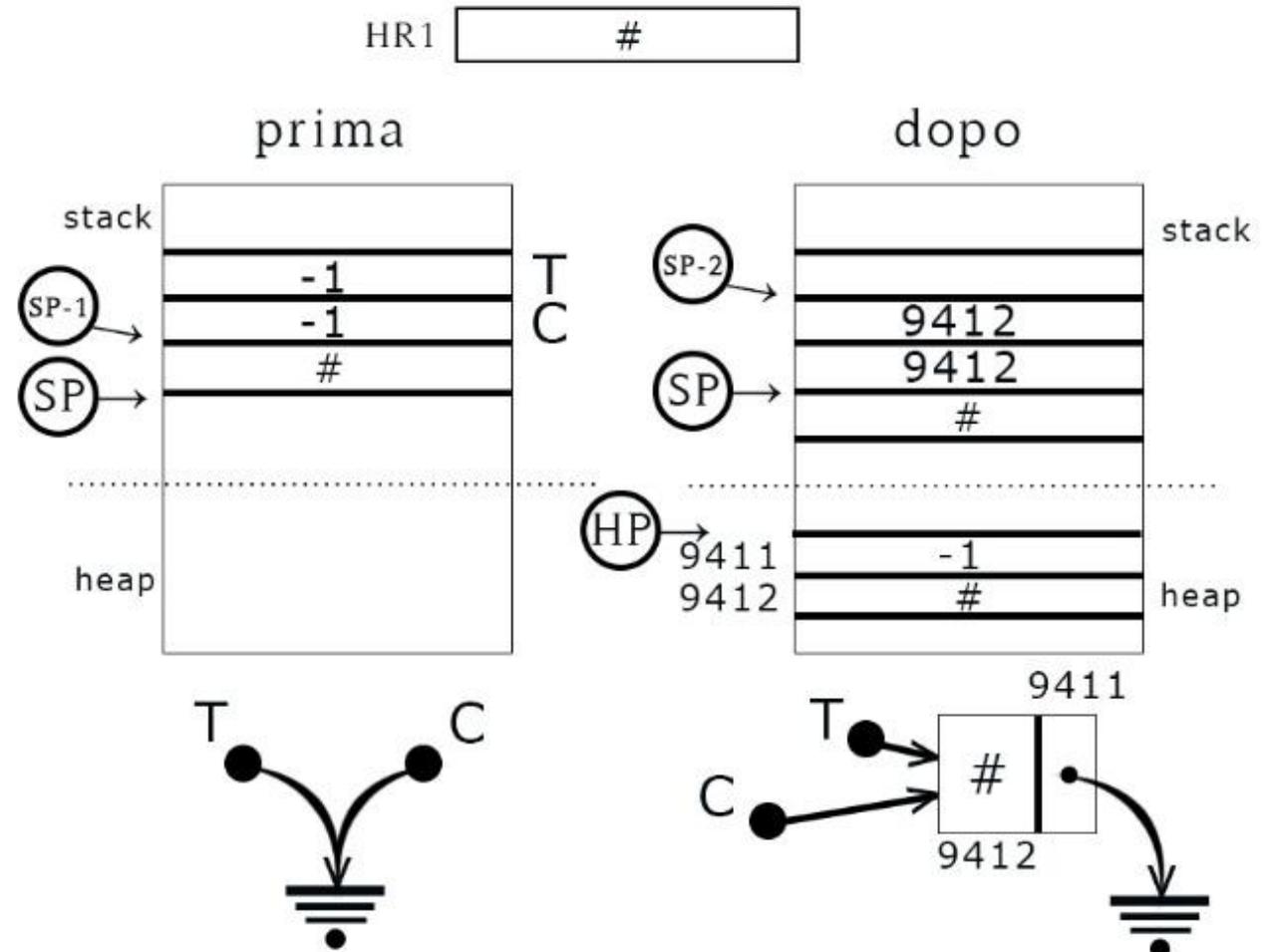
$\text{DataMem}[\text{HR1}] \leftarrow \text{DataMem}[\text{SP}-1],$
 $\text{SP} \leftarrow \text{SP}-1;$

$\text{DataMem}[\text{HP}] \leftarrow \text{HR1}, \text{HP} \leftarrow \text{HP}-1;$

$\text{DataMem}[\text{HP}] \leftarrow 1, \text{HP} \leftarrow \text{HP}-1;$

$\text{DataMem}[\text{SP}-1] \leftarrow \text{HP}+2;$

$\text{DataMem}[\text{SP}-2] \leftarrow \text{HP}+2;$



CONCLUSIONI

Estensione

E' possibile estendere le funzioni della macchina modificandone l'architettura con l'aggiunta di ulteriori moduli e/o istruzioni