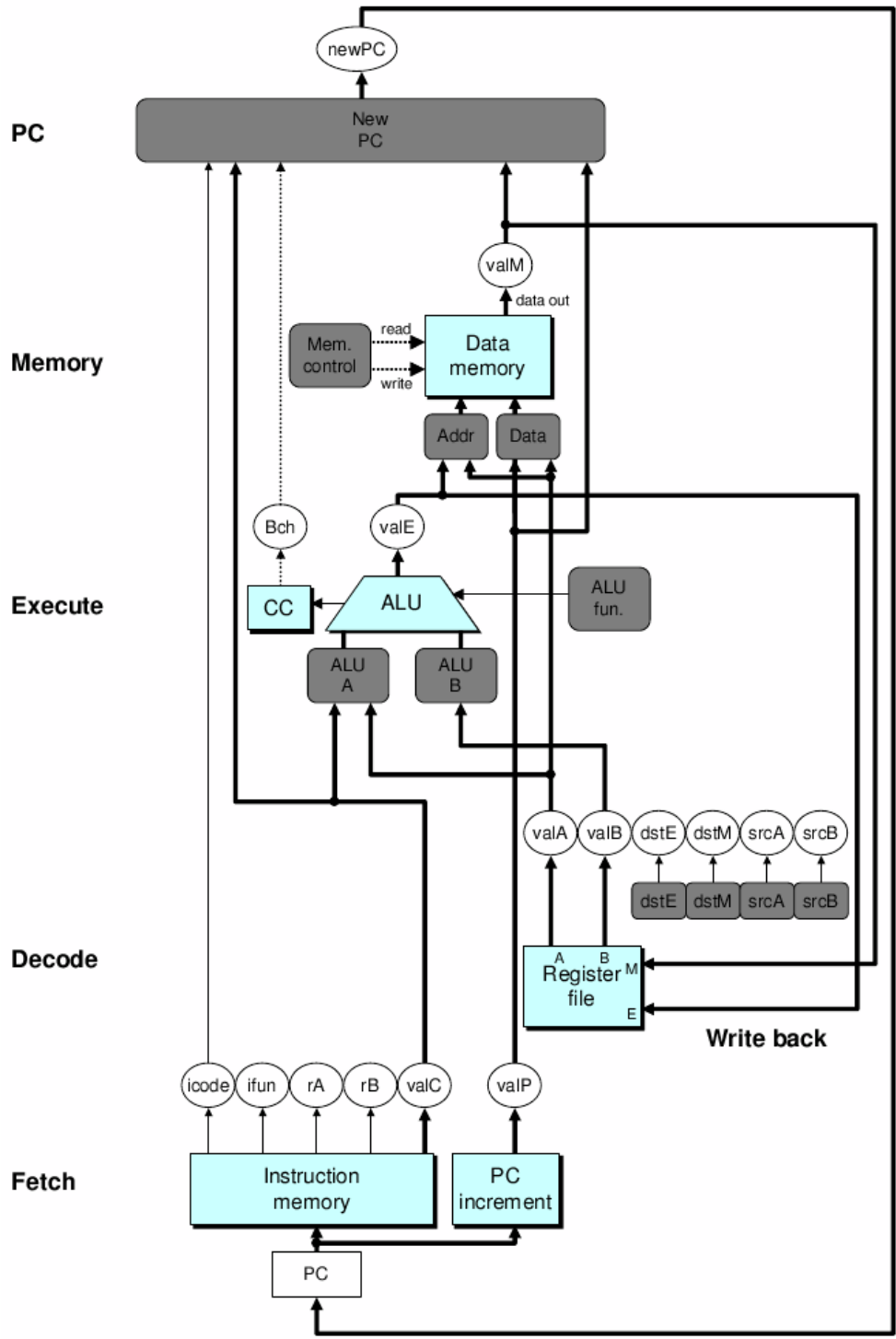


Architecture Seq

Architecture générale:



```

int new_pc = [
  # Call. Use instruction constant
  icode == CALL : valC;
  # Taken branch. Use instruction constant
  icode == JXX && Bch : valC;
  # Completion of RET instruction.
  # Use value from stack
  icode == RET : valM;
  # Default: Use incremented PC
  1 : valP;
];

```

```

## Set read control signal
bool mem_read = icode in { MRMOVL, POPL, RET };

## Set write control signal
bool mem_write = icode in { RMMOVL, PUSHL, CALL };

## Select memory address
int mem_addr = [
  icode in { RMMOVL, PUSHL, CALL, MRMOVL } : valE;
  icode in { POPL, RET } : valA;
  # Other instructions don't need address
];

## Select memory input data
int mem_data = [
  # Value from register
  icode in { RMMOVL, PUSHL } : valA;
  # Return PC
  icode == CALL : valP;
  # Default: Don't write anything
];

```

```

## Select input A to ALU
int aluA = [
  icode in { RMMOVL, OPL } : valA;
  icode in { IRMOVL, RMMOVL, MRMOVL, IOPL } : valC;
  icode in { CALL, PUSHL } : -4;
  icode in { RET, POPL } : 4;
  # Other instructions don't need ALU
];

## Select input B to ALU
int aluB = [
  icode in { RMMOVL, MRMOVL, OPL, IOPL, CALL,
    PUSHL, RET, POPL } : valB;
  icode in { RMMOVL, IRMOVL } : 0;
  # Other instructions don't need ALU
];

## Set the ALU function
int alufun = [
  icode in { OPL, IOPL } : ifun;
  1 : ALUADD;
];

## Should the condition codes be updated?
bool set_cc = icode in { OPL, IOPL };

```

```

## What register should be used as the A source?
int srcA = [
  icode in { RMMOVL, RMMOVL, OPL, PUSHL } : rA;
  icode in { POPL, RET } : RESP;
  1 : RNONE; # Don't need register
];

## What register should be used as the B source?
int srcB = [
  icode in { OPL, IOPL, RMMOVL, MRMOVL } : rB;
  icode in { PUSHL, POPL, CALL, RET } : RESP;
  1 : RNONE; # Don't need register
];

## What register should be used as
# the E destination?
int dstE = [
  icode in { RMMOVL, IRMOVL, OPL, IOPL } : rB;
  icode in { PUSHL, POPL, CALL, RET } : RESP;
  1 : RNONE; # Don't need register
];

## What register should be used as
# the M destination?
int dstM = [
  icode in { RMMOVL, POPL } : rA;
  1 : RNONE; # Don't need register
];

```

