

Pacemaker Project Requirements

General Description

Design a general purpose processor that can execute programs stored in an external memory.

Requirements

The processor must be capable of executing programs stored in an external memory, with which it communicates using a 16-bit address bus and a 16-bit data bus, as well as responding to interrupts from three devices.

An example of a program that might be executed on the processor is the pseudocode below, which is an extreme oversimplification of an early cardiac pacing device.

Start:

```
Initialize
Loop forever
  If (cTime > max(vTime + vDelay, pTime + pDelay))
    pEvent
    pTime = cTime
```

vInterrupt:

```
vTime = cTime
return from interrupt
```

aInterrupt:

```
aTime = cTime
return from interrupt
```

tInterrupt:

```
cTime = clock
return from interrupt
```