

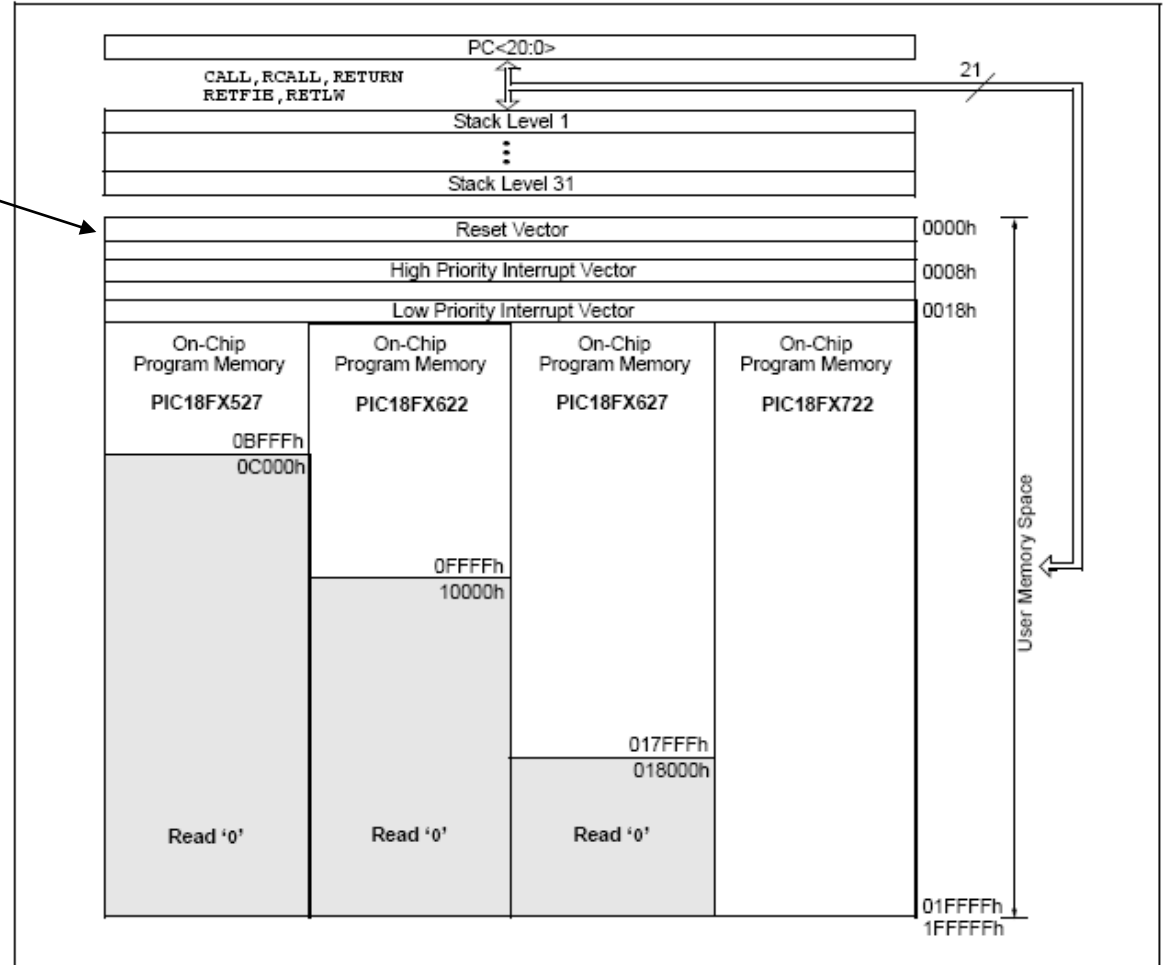
Booting

Bootning

- Make sure that the right code is on the right place when a device is powered on, for instance
 - Microchip PIC is started from program address 0x0 in memory
 - The PIC must be correctly programmed in order to run
 - PC: Starting at address 0xFFFF0
 - The BIOS is usually handling the startup

Example – PIC18F6627

FIGURE 5-1: PROGRAM MEMORY MAP AND STACK FOR PIC18F8722 FAMILY DEVICES



Starts here on
Reset / "boot"

Exempel - PC

Intel HEX file format

- An Intel HEX file is composed of any number of HEX records. Each record is made up of five fields that are arranged in the following format:
- `:llaaaatt[dd...]cc` Each group of letters corresponds to a different field, and each letter represents a single hexadecimal digit. Each field is composed of at least two hexadecimal digits-which make up a byte-as described below:
- `:` is the colon that starts every Intel HEX record.
- `ll` is the record-length field that represents the number of data bytes (`dd`) in the record.
- `aaaa` is the address field that represents the starting address for subsequent data in the record.
- `tt` is the field that represents the HEX record type, which may be one of the following:
 - `00` - data record
 - `01` - end-of-file record
 - `02` - extended segment address record
 - `04` - extended linear address record
- `dd` is a data field that represents one byte of data. A record may have multiple data bytes. The number of data bytes in the record must match the number specified by the `ll` field.
- `cc` is the checksum field that represents the checksum of the record. The checksum is calculated by summing the values of all hexadecimal digit pairs in the record modulo 256 and taking the two's complement.

Remote booting

- Get the TCP/IP address using DHCP
 - Might also get the information on where the boot image is located
- Get the image from a server using TFTP
- Unpack the image / install
- Normal kernel / system startup