

# CP316 Introduction

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# Introduction to the PIC Microcontroller

# Introduction to the PIC Microcontroller

$\mu$ PU vs.  $\mu$ CU vs. DSP

# Introduction to the PIC Microcontroller

$\mu$ PU vs.  $\mu$ CU vs. DSP

→ Section 1.2.2

# Introduction to the PIC Microcontroller

$\mu$ PU vs.  $\mu$ CU vs. DSP

→ Section 1.2.2

→ Section 1.4

# Introduction to the PIC Microcontroller

$\mu$ PU vs.  $\mu$ CU vs. DSP

→ Section 1.2.2

→ Section 1.4

QwikFlash Board

# Introduction to the PIC Microcontroller

$\mu$ PU vs.  $\mu$ CU vs. DSP

→ Section 1.2.2

→ Section 1.4

QwikFlash Board

MPLABX IDE

# Memory organization



# Memory organization

*Modified* Harvard Architecture

# Memory organization

*Modified* Harvard Architecture

→ Section 1.5.1

# Memory organization

## *Modified* Harvard Architecture

→ Section 1.5.1

→ Section 14.3

# Memory organization

## *Modified* Harvard Architecture

→ Section 1.5.1

→ Section 14.3

→ Section 1.11.1

# Memory organization

## *Modified* Harvard Architecture

→ Section 1.5.1

→ Section 14.3

→ Section 1.11.1

→ **Section 4.0**

# Data memory

# Data memory

Data memory location → File Register

# Data memory

Data memory location → File Register  
GPRs



# Data memory

Data memory location → File Register

GPRs

SFRs

# Data memory

Data memory location → File Register

GPRs

SFRs

→ [Section 4.9](#)

# Data memory

Data memory location → File Register

GPRs

SFRs

→ Section 4.9

Access bank

# Data memory

Data memory location → File Register

GPRs

SFRs

→ Section 4.9

Access bank

→ Section 4.10

# Data memory

Data memory location → File Register

GPRs

SFRs

→ Section 4.9

Access bank

→ Section 4.10

BSR

# Data memory

Data memory location → File Register

GPRs

SFRs

→ Section 4.9

Access bank

→ Section 4.10

BSR

→ Section 4.11

# Data memory

Data memory location → File Register

GPRs

SFRs

→ Section 4.9

Access bank

→ Section 4.10

BSR

→ Section 4.11

**No software stack!**

# Data memory

Data memory location → File Register

GPRs

SFRs

→ Section 4.9

Access bank

→ Section 4.10

BSR

→ Section 4.11

**No software stack!**

→ Section 1.5.4



# Data memory

Data memory location → File Register

GPRs

SFRs

→ Section 4.9

Access bank

→ Section 4.10

BSR

→ Section 4.11

**No software stack!**

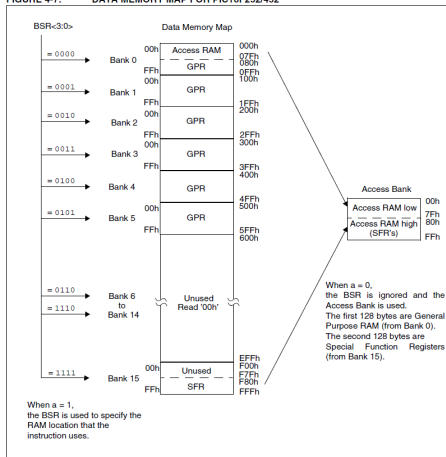
→ Section 1.5.4

→ Section 4.2

# File Registers and Access Bank

# File Registers and Access Bank

FIGURE 4-7: DATA MEMORY MAP FOR PIC18F252/452



# Features

# Features

RISC architecture

# Features

RISC architecture

→ Section 1.11.1

# Features

RISC architecture

→ Section 1.11.1

→ Section 1.4

# Features

RISC architecture

→ Section 1.11.1

→ Section 1.4

→ **Section 20.0**



# Features

RISC architecture

→ Section 1.11.1

→ Section 1.4

→ **Section 20.0**

Simple assembler

# Features

RISC architecture

→ Section 1.11.1

→ Section 1.4

→ **Section 20.0**

Simple assembler

→ Section 1.9

# Features

RISC architecture

→ Section 1.11.1

→ Section 1.4

→ **Section 20.0**

Simple assembler

→ Section 1.9

→ **Section 21.2**

# W Register

# W Register

Working register

# W Register

Working register

→ Section 1.6

# W Register

Working register

→ Section 1.6

*also SFR 0xFE8*

# W Register

Working register

→ Section 1.6

*also SFR 0xFE8*

→ Section 1.0



# STATUS register

# STATUS register

Status register

# STATUS register

Status register

→ Section 1.6

# STATUS register

Status register

→ Section 1.6

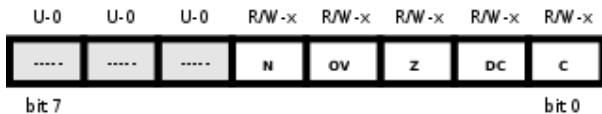
→ Section 4.13

# STATUS register

Status register

→ Section 1.6

→ Section 4.13

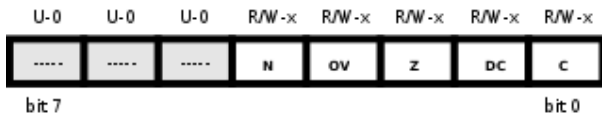


# STATUS register

Status register

→ Section 1.6

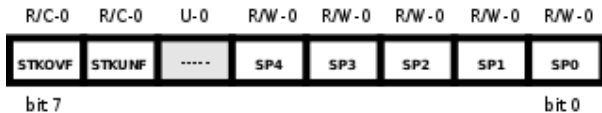
→ Section 4.13



Bits in STATUS register

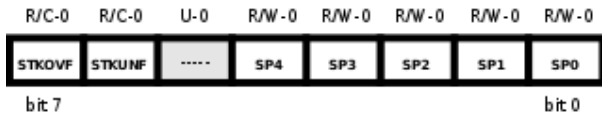
# STKPTR register

# STKPTR register





# STKPTR register



Bits in STKPTR register