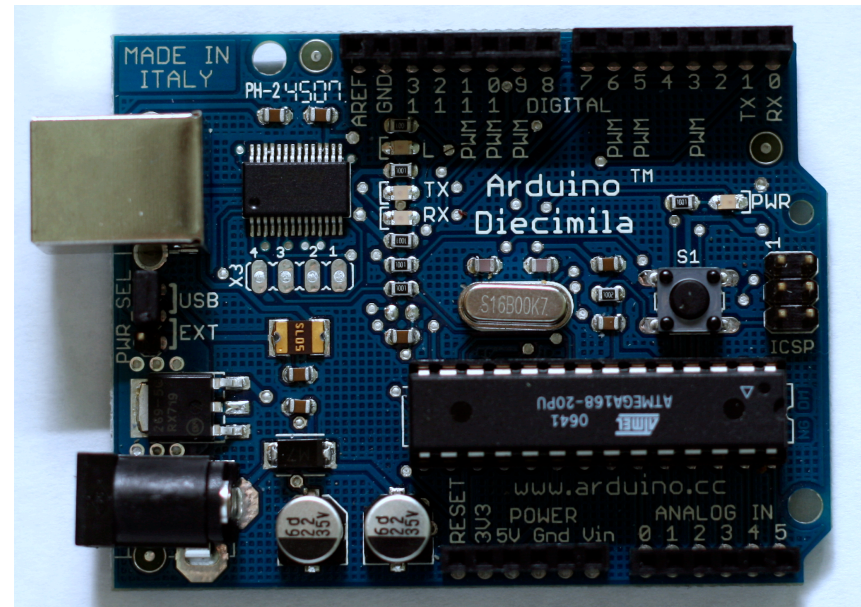# Microcontroller programming
(with PIC microcontrollers)

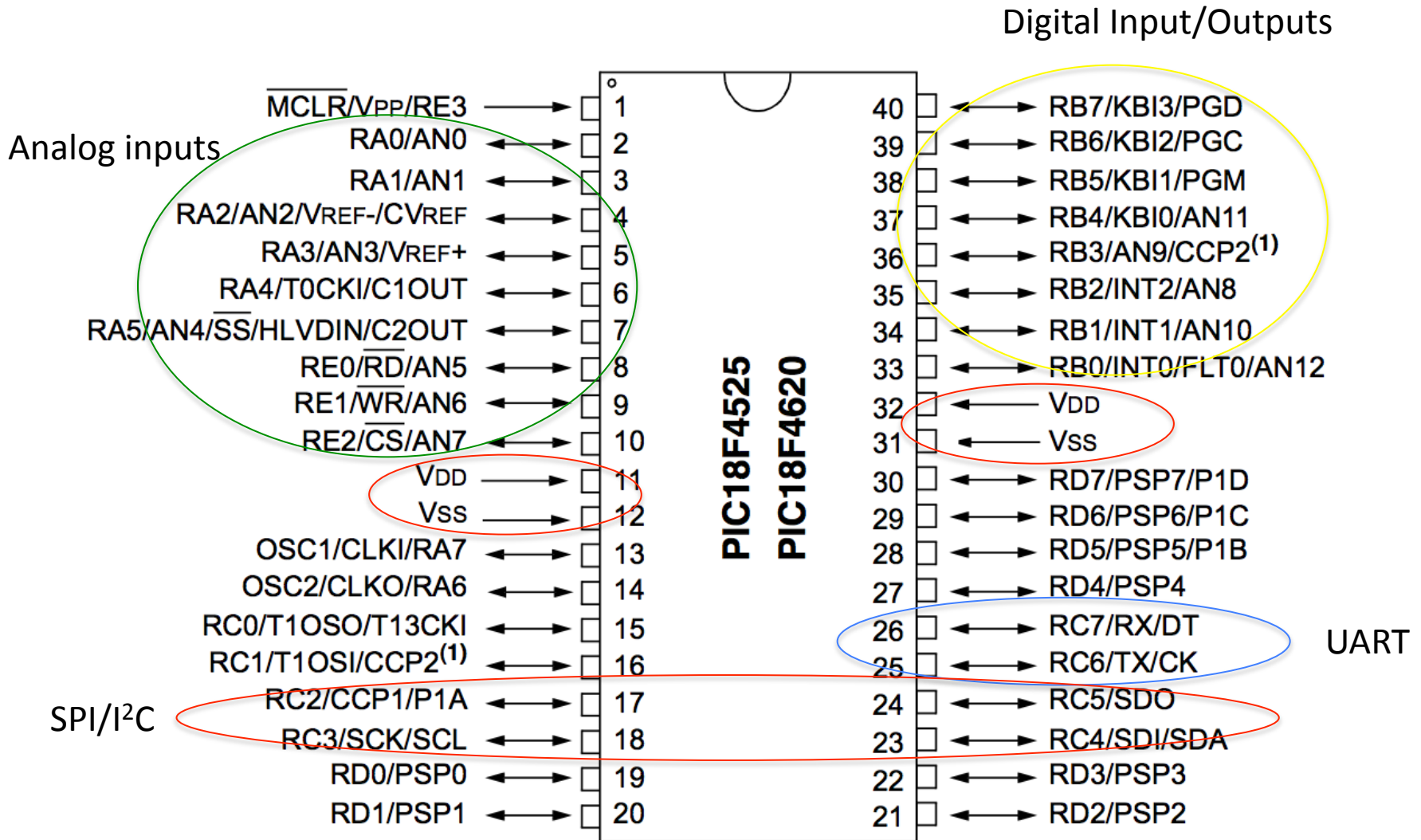# Why PIC?

- Lots of types of microcontrollers
- PICs are very popular, over 8 billion sold

So it's just C? That sounds simple…

- Harvard architecture—separate data (RAM) and program (Flash ROM) address spaces

- Low resources: 65K ROM, 4K RAM, maximum of 32 calls stack depth, and 256 bytes of stack data, 10 million instructions/sec max

- Access of stack data is, shall we say, leisurely…

Digital Input/Outputs

Analog inputs

SPI/I²C

UART

MCLR/Vpp/RE3	1	40	RB7/KBI3/PGD
RA0/AN0	2	39	RB6/KBI2/PGC
RA1/AN1	3	38	RB5/KBI1/PGM
RA2/AN2/VREF-/CVREF	4	37	RB4/KBI0/AN11
RA3/AN3/VREF+	5	36	RB3/AN9/CCP2(1)
RA4/T0CKI/C1OUT	6	35	RB2/INT2/AN8
RA5/AN4/SS/HLVDIN/C2OUT	7	34	RB1/INT1/AN10
RE0/RD/AN5	8	33	RB0/INT0/FLT0/AN12
RE1/WR/AN6	9	32	VDD
RE2/CS/AN7	10	31	VSS
VDD	11	30	RD7/PSP7/P1D
VSS	12	29	RD6/PSP6/P1C
OSC1/CLKI/RA7	13	28	RD5/PSP5/P1B
OSC2/CLKO/RA6	14	27	RD4/PSP4
RC0/T1OSO/T13CKI	15	26	RC7/RX/DT
RC1/T1OSI/CCP2(1)	16	25	RC6/TX/CK
RC2/CCP1/P1A	17	24	RC5/SDO
RC3/SCK/SCL	18	23	RC4/SDI/SDA
RD0/PSP0	19	22	RD3/PSP3
RD1/PSP1	20	21	RD2/PSP2

PIC18F4525
PIC18F4620

Schematic