

**MSP430
MCUs**



**Data
Converters**



Interface

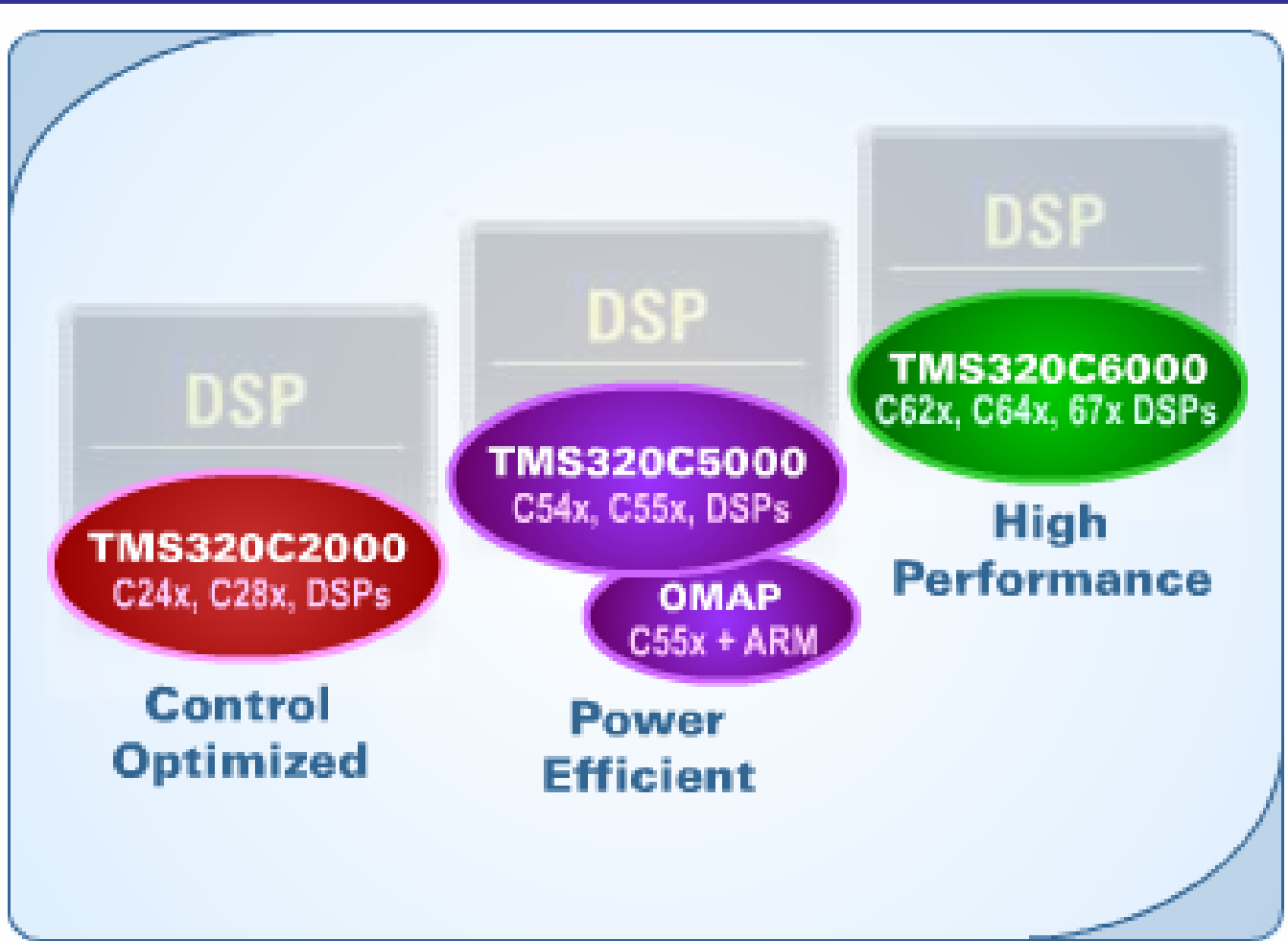


**Digital Signal
Controllers**



Semestrální práce SCS DSP C2000

Pavel Srb



DSP

TMS320C2000
C24x, C28x, DSPs

**Control
Optimized**

DSP

TMS320C5000
C54x, C55x, DSPs

OMAP
C55x + ARM

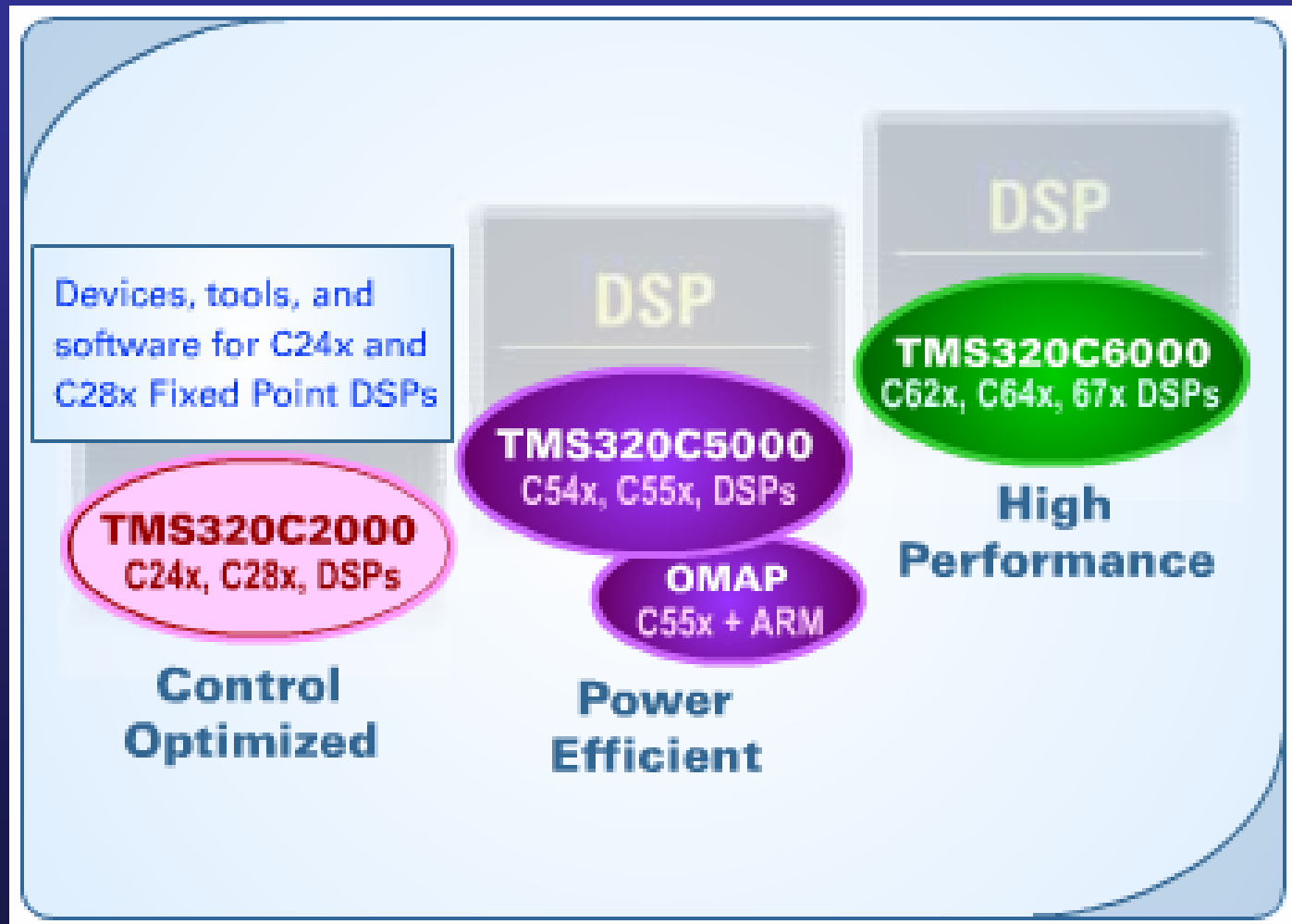
**Power
Efficient**

DSP

TMS320C6000
C62x, C64x, 67x DSPs

**High
Performance**

Rodina C2000



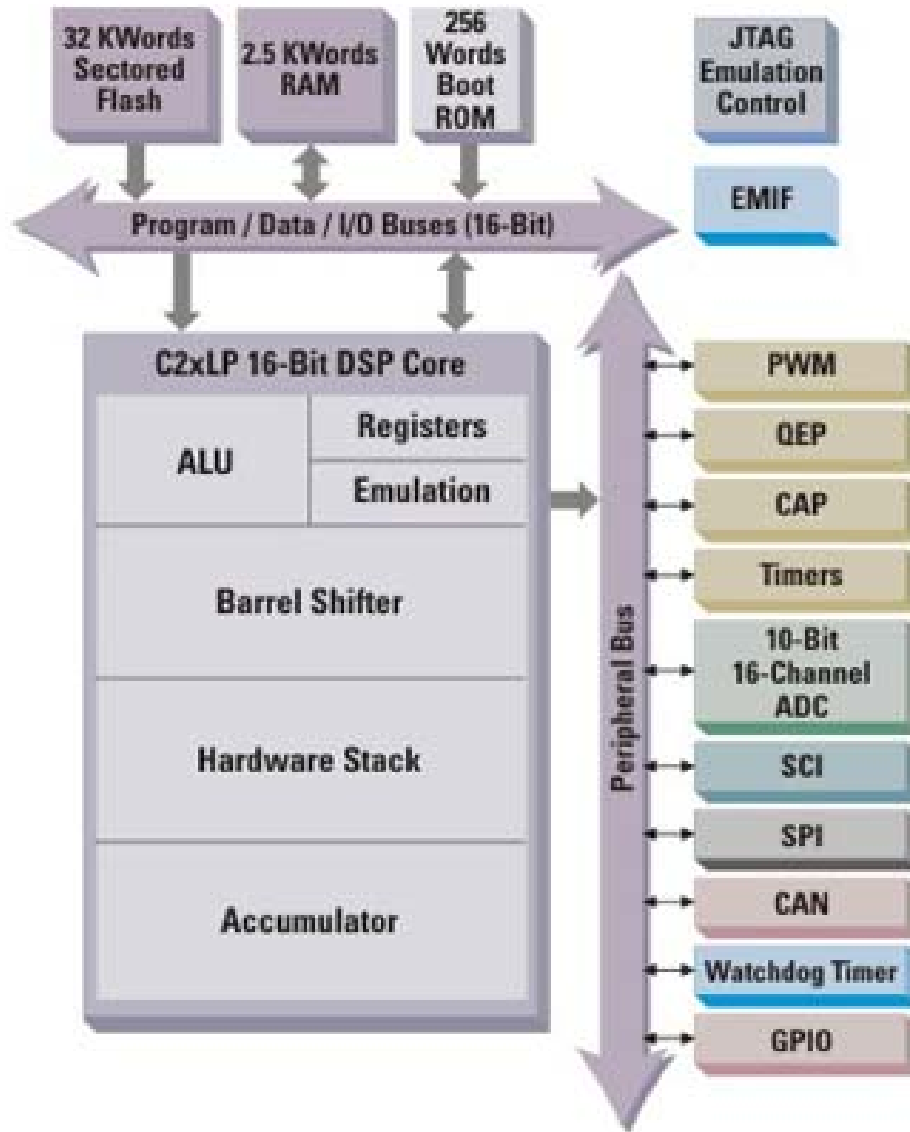
Rozdělení C2000

- TSM320C24x
 - 16bit sběrnice
 - AŽ 40 MIPS
 - 1,95\$ - 16,21\$
- TSM320C28x
 - 32bit sběrnice
 - AŽ 150 MIPS
 - 5,79\$ - 16,47\$

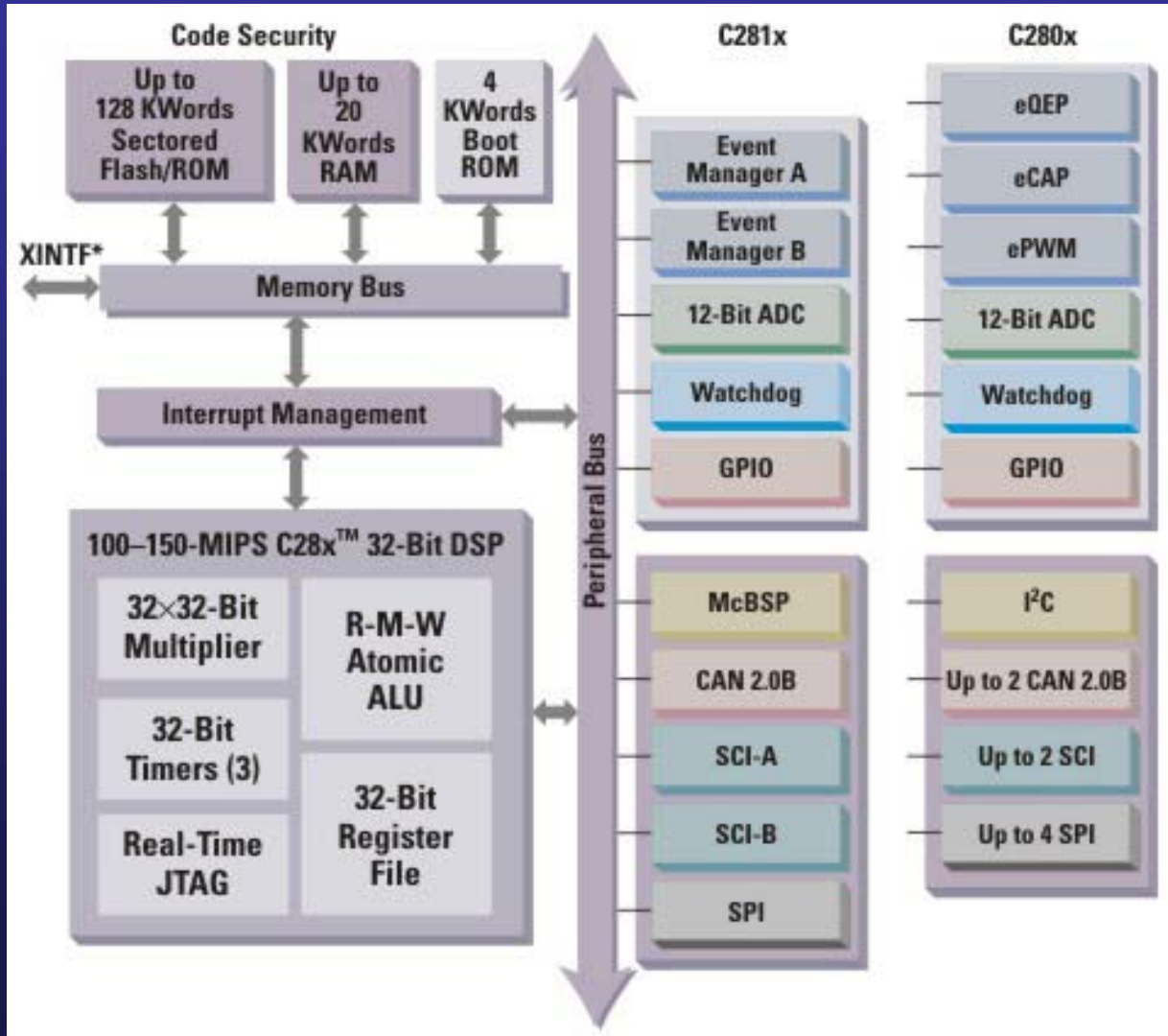
2000 DSPs : Compare C2000 DSPs

Parameter	C28x Fixed-Point DSPs	C24x Fixed-Point DSPs
Frequency (MHz)	100-150	20 - 40
Instructions/IPS	100-150	20 - 40
16-bit MACS	N/A	N/A
32-bit MACS	N/A	N/A
Special Instructions/Capabilities	C/C++ Efficient, Single Cycle Read-Modify-Write, Code Compatible with C24x Devices, IQ Math Library	Code Compatible with C28x Devices, Three Power-Down Modes, JTAG Scan-Based Emulation, Package Size as small as 49 mm ²
Active Power	See Datasheet	See Datasheet
Pricing (10kU)	\$4.95 to \$15 US	\$1.95 to \$15 US
Peripherals/Coprocessors	128Kw, 64Kw, 32Kw Flash/ROM, 12-bit ADC, Multichanneled Buffered Serial Port (McBSP), 2 UARTs, Up to 2 Event Managers, Enhanced Controller Area Network (eCAN) Up to 4 SPI, 32-56 GPIO, Watch Dog Timer, Code Security for on-chip FLASH	32K, 16K or 8K Flash, Dual 10-bit ADC, SPI, UART, 16 PWM Channels, 2 Event Managers, Controller Area Network (CAN), Communication Controller, SC SPI, Watchdog Timer,

TSM320C24x



TSM320C28x



Řadič

- Programovatelný watchdog
- Capture a QEP jednotka
- PDP Časovač/komparátor
- Interrupt

A/D převodník

- 10-bit vzorkování (C24) 12-bit (C28)
- Převod 375ns (240xA) 80ns (F2812)
- Externí a EV trig
- Až 16 A/D
- Auto Sekvencer

Serial Communication Interface

SCI-UART

- Asynchronní komunikace
- Programovatelná
 - rychlost
 - Délka slova
 - Stop bit
- Detekce chyb
- Half nebo Full Duplex

Přehled 24x

Part Number	Status	CPU	Peak MMACS	Frequency (MHz)	RAM	ROM	Flash	EMIF	PWM	CAP/QEP	ADC	ADC Conversion Time	UART	SPI	CAN	Time
320LF2407A	ACTIVE	1 C24x	40	40	5 KB		64 KB	16-Bit	16-Ch	6/4	16-Ch 10-Bit	500 ns	1 SCI	1	1	
320LF2406A	ACTIVE	1 C24x	40	40	5 KB		64 KB		16-Ch	6/4	16-Ch 10-Bit	500 ns	1 SCI	1	1	1 4 16
320LF2403A	ACTIVE	1 C24x	40	40	2 KB		32 KB		8-Ch	3/2	8-Ch 10-Bit	500 ns	1 SCI	1	1	1 2 16
320LF2402A	ACTIVE	1 C24x	40	40	2 KB		16 KB		8-Ch	3/2	8-Ch 10-Bit	500 ns	1 SCI			1 2 16
320LF2401A	ACTIVE	1 C24x	40	40	2 KB		16 KB		8-Ch	1/0	5-Ch 10-Bit	500 ns	1 SCI			1 2 16
320LC2406A	ACTIVE	1 C24x	40	40	5 KB	64 KB			16-Ch	6/4	16-Ch 10-Bit	375 ns	1 SCI	1	1	1 4 16
320LC2404A	ACTIVE	1 C24x	40	40	3 KB	32 KB			16-Ch	6/4	16-Ch 10-Bit	375 ns	1 SCI	1		1 4 16
320LC2403A	ACTIVE	1 C24x	40	40	2 KB	32 KB			8-Ch	3/2	8-Ch 10-Bit	500 ns	1 SCI	1	1	1 2 16
320LC2402A	ACTIVE	1 C24x	40	40	1 KB	12 KB			8-Ch	3/2	8-Ch 10-Bit	425 ns	1 SCI			1 2 16
320LC2401A	ACTIVE	1	40	40	2 KB	16 KB			7-Ch	1/0	5-Ch	500 ns	1 SCI			1

Řada 24x na 5V

Part Number	Status	CPU	Peak MMACS	Frequency (MHz)	RAM	ROM	Flash	EMIF	PWM	CAP/QEP	ADC	ADC Conversion Time	UART	SPI	CAN	Timers	GPIO	Con Sup (Vo
320F243	ACTIVE	1 C24x	20	20	1 KB		16 KB	1 16-Bit	8-Ch	3/2		900 ns	1 SCI	3	1	1 WD 2 16-Bit GP	32	
320F241	ACTIVE	1 C24x	20	20	1 KB		16 KB		8-Ch	3/2		900 ns	1 SCI	3	1	1 WD 2 16-Bit GP	26	
320F240	ACTIVE	1 C24x	20	20	1 KB		32 KB	1 16-Bit	12-Ch	4/2	16-Ch 10-Bit	6.1 us	1 SCI	3		1 WD 3 16-Bit GP	28	
320C242	ACTIVE	1 C24x	20	20	1 KB	8 KB			8-Ch	3/2	8-Ch 10-Bit	900 ns	1 SCI			1 WD 2 16-Bit GP	26	

ŘADA 28X

Part Number	Status	CPU	Peak MMACS	Frequency (MHz)	RAM	ROM	OTP ROM	Flash	EMIF	PWM	CAP/QEP	ADC	McBSP	I2C	UART	SPI	CAN	Timers	GP
320R2812	ACTIVE	1 C28x	150	150	40 KB				16-Bit EMIF	16	6/2	16-Ch 12-Bit	1		2 SCI	1	1	1 WD 4 16-Bit GP	
320R2811	ACTIVE	1 C28x	150	150	40 KB					16	6/2	16-Ch 12-Bit	1		2 SCI	1	1	1 WD 4 16-Bit GP	
320F2812	ACTIVE	1 C28x	150	150	36 KB		2 KB	256 KB	16-Bit EMIF	16	6/2	16-Ch 12-Bit	1		2 SCI	1	1	1 WD 4 16-Bit GP	
320F2811	ACTIVE	1 C28x	150	150	36 KB		2 KB	256 KB		16	6/2	16-Ch 12-Bit	1		2 SCI	1	1	1 WD 4 16-Bit GP	
320F2810	ACTIVE	1 C28x	150	150	36 KB		2 KB	128 KB		16	6/2	16-Ch 12-Bit	1		2 SCI	1	1	1 WD 4 16-Bit GP	
320F2808	ACTIVE	1 C28x	100	100	36 KB		2 KB	128 KB		16	4/2	16-Ch 12-Bit		1	2 SCI	4	2	1 WD 6 32-Bit GP 8 16-Bit GP	
320F2806	ACTIVE	1 C28x	100	100	20 KB		2 KB	64 KB		16	4/2	16-Ch 12-Bit		1	2 SCI	4	1	1 WD 6 32-Bit GP 8 16-Bit GP	

Děkuji za pozornost
Více se dozvíte na stránkách
www.ti.com/c2000