## 16-bit PIC® Microcontroller Peripheral Integration

Quick Reference Guide

																						Perip	heral	l Fun	ction	Focu	ıs																
					Inte	grate	d Ar	alog		Wav	efor/	m C	ontro	ı			lock I Tim					y and toring				С	omm	unica	tions			Ι.	Use			cure Data			Syst	tem F	lexib	ility	
		(KB)						Т								and		ers			WOIII	loring			T		Т	Т	T		Т	ľ	iteri	ace		ala							
Product Family	Maximum MIPS	Program Flash Memory (K	RAM (KB)	Pin Count	ADC (resolution)¹	DAC (resolution) <sup>2</sup>	CVREF	HS Comp	CCP/ECCP	SCCP	PWM	MC PWM	SMPS PWM	PWM Resolution (ns)	8-bit Timer	16-bit Timer	32-bit Timer	RTCC	QEI	LVD	WDT	CRC	Class B Safety <sup>3</sup>	USB	CAN/CAN FD	UART	LIN °	0 2 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SPI	IзSтм	SENT	CTMII and mTouch Sensing	Segments)	GFX	Cryptographic Engine	Secure Key Storage	RNG Dual Partition Flash	בשונוסוו	PPS	PTG	IDLE, SLEEP and PMD		XLP
PIC24 Family																																											
PIC24F04KA20X <sup>5V</sup>	8	4	0.5	14-20	10		✓ .	/			1		✓	62		✓	✓			<b>√</b> ,	/		L1			✓ v	/ /	· 🗸	✓			✓									1	1	✓
PIC24F04KL10X	16	4	0.5	14–20			✓ .	/	<b>✓</b>		<b>✓</b>		✓	15	√	✓	✓			<b>√</b> ,	/		L1			✓ v	/ /	· 🗸	✓												1	1	✓
PIC24F08KL20X	16	8	0.5	14–20	10		✓   ·	/	<b>✓</b>		<b>✓</b>		✓	15	. ✓	✓	<b>✓</b>			✓ ,	/		L1			<   ·	/ /	· 🗸	✓												<b> </b> ✓	1	<b>√</b>
PIC24F08KL30X	16	8	1	20-28			✓ .	/	1		1		<b>✓</b>	15	✓	<b>✓</b>	✓			√ ·	/		L1			√ v	/ /	· 🗸	✓												1	1	<b>✓</b>
PIC24FXXKL40X	16	8–16	1	20-28	10		✓ .	/	V		✓		<b>✓</b>	15	✓	<b>✓</b>	✓			✓ ,	/		L1			✓ v	/ /	· 🗸	✓												1	1	<b>√</b>
PIC24FXXKA10X	16	8–16	1.5	20-28	10		✓ .	/			1		1	62		✓	✓			√ ,	/	1	L2			√ v	/ /	· 🗸	✓			<b>✓</b>									1	1	✓
PIC24FXXKM10X <sup>5V</sup>	16	8–16	1	20-44	12		✓ .	/		<b>√</b> ✓	1		<b>✓</b>	62		✓	✓			✓ ,	/	1	L2			√ v	/ /	· 🗸	✓			<b>✓</b>						✓			1	1	✓
PIC24FXXKM20X5V	16	8–16	2	20–44	12	8	✓ .	/ /		< <	~		<b>✓</b>	62		~	<b>✓</b>			✓ ,	/	~	L2			✓ v	/ /	. 1	~			~						<b>✓</b>			<b>✓</b>	<b>√</b>	<b>√</b>
PIC24FXXKA30X⁵V	16	16–32	2	20–44	12		✓ .	/			1		<b>✓</b>	15		1	<b>√</b>			√ ,	/	✓	L2			√ v	/ /	· 🗸	1			<b>√</b>									1	1	<b>✓</b>
PIC24FJXXGA00X	16	16–64	4–8	28–44	10			/			<b>√</b>		<b>√</b>	62	_	<b>√</b>	1			√ ,	/	1	L2			√ v	/ /	· 🗸	1		,	/							1		1	1	
PIC24FJXXMC10X		16–32	1–2	20–44	10	4		/			<b>√</b>	✓ .	<b>/ /</b>	31		<b>√</b>	<b>√</b>	✓		,	/		L1			√ v	/ /	· 🗸	1			<b>√</b>							1		1	1	
PIC24EPXXXGP20X		32–512	4–48	28–64	12	4		/ /			<b>√</b>		✓	14		<b>✓</b>	1			١,	/	1	L2			√ v	/ /	· 🗸	✓			<b>√</b>							1	<b>√</b> ✓	1 1	1	
PIC24EPXXXMC20X		32–512	4–48	28-64	12	4		1 1			<b>√</b>	✓ .	<b>√ √</b>	7		✓	✓		✓	,	/	<b>✓</b>	L2			√ v	/ /	· 🗸	✓			<b>√</b>							1	1 1	1 1	<b>✓</b>	
PIC24FJXXGA10X	16	32-64	8	28–44	10		1	/			1		<b>✓</b>	15		<b>✓</b>	<b>√</b>			√ ,	/	1	L2			√ v	/ /	· 🗸	<b>√</b>			/ /							1		1	1	✓
PIC24FJXXGB00X	16	32-64	8	28–44	10			/			<b>✓</b>		✓	15		✓	✓			√ ,	/	1	L2	1		✓ v	/ /	· 🗸	✓		٧	/ /							1		1	1	✓
PIC24FJXXXGA0XX	16	64–128	8	64–100	10		1	/			✓		<b>√</b>	62		✓	✓			١,	/	1	L2			√ v	/ /	· 🗸	<b>√</b>			1									1	1	

<sup>1: 16-</sup>bit PIC® MCU offers SAR ADC, high-speed ADC and Delta-Sigma ADC
2: 16-bit PIC MCU offers general-purpose DAC and audio DAC

(5V) 16-bit PIC MCUs and dsPIC DSCs with 5V operating Voltage Note: Similar family of devices with fewer variations are grouped with the same color coding

The second of t

																					Pe	riphe	ral F	uncti	on Fo	ocus																	
					Int	tegra	ted Ana	alog		v	Vavefo	m C	ontro	1			Clock				afety					Con	nmun	icatio	ns		U	ser Inte	rface		Secu			s	yster	n Fle	xibili	ity	
Product Family	Maximum MIPS	rogram Flash Memory (KB)	RAM (KB)	) Count	ADC (resolution)¹	DAC (resolution)²	CVREF		CCP/ECCP		MCCP	MC PWM	SMPS PWM	IC and OC	PWM Resolution (ns)	8-bit Timer	32-bit Timer	Q			onito		Class B Safety <sup>3</sup>		CAN/CAN FD					SENT	Parallel Port			tographic Engine	Secure Key Storage		Dual Partition Flash				SLEEP and PMD	ш	AT AT
		Ę	A.	E	AD	۵	S 3	2   B	8	သ 	ĭ	ž	S	으	₹	8-F	32-	듄		WDT	DMT	CRC	ਠੱ	USB	ರೆ  <u>ಕ</u>	i z	IrDA。	ပ္က	I <sup>2</sup> S <sup>TM</sup>	S	a   E	<u> </u>	S Z	ن ا	Se	RNG		CLC Blc	PTG	DMA	₫	DOZ	VBAT
PIC24 Family (Continued	)																																										
PIC24FJXXXGA1XX	16	64–256	16	64–100	10		<b>✓</b>	_			<b>✓</b>				15	✓			✓			<b>✓</b>			✓	_	$\rightarrow$	< ·	_		<b>√</b> ✓										✓		
PIC24FJXXXGB1XX	16	64–256	16	64–100	10		<b>✓</b>				✓				15		<b>✓</b>		✓			<b>√</b>	L2	<b>√</b>	✓	✓	1	< ·			<b>√</b> ✓							<b>~</b>				✓	
PIC24FJXXXGA20X	16	64–128	8	28–44	12						✓			✓	15	✓	✓	✓	✓	· 🗸		<b>√</b>	L2		✓			< \	′ ✓		< <			✓	✓	✓		·		<b>✓</b>	✓	< <	<b>'</b>
PIC24FJXXXGB20X	16	64–128	8	28–44	12		<b>✓</b>				✓			✓	15	✓	✓	✓	✓	· 🗸		✓	L2	✓	✓			< \	/ /		1 1			✓	✓	✓		<b>✓</b>		✓	✓	1 1	< <
PIC24FJXXXGA3XX	16	64–128	8	64–100	12		< <				<b>✓</b>			✓	15	✓	✓	<b>✓</b>	<b>✓</b>	· 🗸			L2		~	· /		✓ ·			✓	Up to 480						~		~	~	< <	
PIC24FJXXXGC0XX	16	64–128	8	64–100	16	10	< <				~			<	15	<b>✓</b>	✓	<b>✓</b>	~			V	L2	✓	~	~	~	v .			✓ <b>✓</b>	Up to						~		~	~	<	•
PIC24FJXXXDA2XX	16	128-256	24-96	64-100	10		~	-			<b>✓</b>			✓	15	<b>√</b>	· /		✓	· 🗸		1	L2	1	✓	<b>✓</b>	1	√ ,	/		1 1		<b>✓</b>					·	/	1	<b>√</b>	<b>√</b>	$\Box$
PIC24FJXXXGA2XX	16	128-256	96	64-100	10		~	-			✓			✓	62	<b>✓</b>	<b>✓</b>		<b>√</b>	· /		<b>✓</b>	L2		✓	V	<b>√</b>	V ,			V V							_	/		✓	✓	
PIC24FJXXXGB2XX	16	128-256	96	64-100	10		V				<b>✓</b>			✓	62	✓	<b>✓</b>		<b>√</b>	· 🗸		<b>✓</b>	L2	✓	✓	<b>✓</b>	✓	✓ ·			V V							V			✓	<b>√</b>	
PIC24FJXXXGA4XX	16	64–256	8-16	64–121	12	10	< <		,	✓ .	< <			✓	62	<b>✓</b>	✓	✓	~	· /		✓	L2		~			✓ ·	/ /		✓ <b>✓</b>	Up to 512		~	~	~	\ ,	<		~	~	<	· 🗸
PIC24FJXXXGB4XX	16	64–256	8-16	64–121	12	10	< <		,	/	/ /			✓	62	~	<b>V</b>	<b>✓</b>	~	· 🗸		V	L2	<b>✓</b>	~			✓ ·	/ /		✓ <b>✓</b>	Up to 512		<b>√</b>	~	1	v .	< <		~	~	< <	•
PIC24FJXXXGA7XX	16	64-256	16	24-48	12		V V				/ /			✓	62	✓	<b>✓</b>	✓	✓	· 🗸		<b>√</b>	L3		<b>√</b>	1	✓	✓ ·	/ /		1 1							/ /	/	✓	✓	<b>✓</b>	
PIC24EPXXXGU81X	60	256-512	28-52	100-144	12	4	~				<b>✓</b>			✓	14	✓	<b>✓</b>			✓		<b>✓</b>	L2	V ,	/ /	<b>✓</b>	✓	✓ ·	/ /		✓						1	V		✓	✓	<b>✓</b>	
PIC24EP512GP806	70	512	52	64	12	4	~				<b>✓</b>			✓	14	<b>✓</b>	✓			✓		<b>✓</b>	L2	,	/ /	<b>✓</b>	✓	<b>√</b> ,	/ /		<b>√</b>						<b>✓</b>	~		✓	✓	✓	
PIC24FJXXXXGA6XX	16	128-1024	32	64-100	12		✓		,	✓	< <			✓	62	✓	<b>✓</b>	✓	✓	· 🗸		✓	L3		✓			< \	/ /		1 1						V ,	/ /			✓	<b>√</b>	
PIC24FJXXXXGB6XX	16	128-1024	32	64-100	12		✓		,	✓	< <			✓	62	✓	✓	✓	✓	· 🗸		✓	L3	<b>✓</b>	✓			<b>√</b> ,	/ /		<b>√</b> ✓						✓ ,	<b>√</b> ✓			✓	<b>✓</b>	
dsPIC33CH Family - Dual	Core (I	M - Master C	Core, S -	Slave Core	)																																						
dsPIC33CH128MP5/20x	M: 90 S: 100	M: 64–128 S: 24	M: 16 S: 4	28–80	12	12				✓ .		✓		✓ (	).25	<b>✓</b>	· /		/ /		<b>✓</b>	<b>✓</b>	L3	,	/   /	√	<b>/</b>	✓ ,	\ \ \	~							\ \ .	✓ <b>/</b>	\ \ \	✓	✓	✓	
dsPIC33EV Family																																											
dsPIC33EVXXXGM00X5V	70	32-256	4–16	28–64	12	7	<b>✓</b>	· /			✓	1		✓	8	✓	<b>√</b>			✓	1		L3		<b>√</b>	V	<b>✓</b>	V .		✓	<b>✓</b>							<b>✓</b>		✓	✓		
dsPIC33EVXXXGM10X5V	70	32-256	4–16	28-64	12	7	~	· 🗸			✓	✓		✓	8	✓	<b>✓</b>			✓	<b>✓</b>		L3	,	/ /	✓	<b>✓</b>	✓ ·		✓	<b>✓</b>							~		✓	✓	<b>✓</b>	
dsPIC33EP Family																																											
dsPIC33EPXXGS2/50X	70	16–64	2–8	28–64	12	12	✓	· /			✓		✓	✓	1	<b>✓</b>	<b>√</b>			✓			L1		✓			V .	/ /								1	·			✓		
dsPIC33EPXXXGS80X	70	64-128	8	28–80	12	12	✓	· 🗸			✓		✓	✓	1	✓	<b>✓</b>	✓		✓			L1	,	/ /	✓	<b>✓</b>	✓ \	1								✓ ,	< <	<b>′ √</b>	✓	✓	✓	
dsPIC33EPXXGP50X	70	32–512	4–48	28–64	12	4	·	· 🗸			✓			✓	14	✓	<b>✓</b>			✓		✓	L2	,	/ /	<b>✓</b>	<b>✓</b>	< \	/		✓							·	<b>′ √</b>	<b>✓</b>	✓	<b>√</b>	
dsPIC33EPXXXMC20X	70	32-256	4–48	28–64	12	4	<b>✓</b>	· 🗸			✓	✓	✓	✓	7	✓	✓	,	/	✓		✓	L2		✓	✓	✓	✓ ·	/		✓							<b>✓</b>	<b>'</b>	✓	✓	<b>√</b>	
dsPIC33EPXXXMC50X	70	32–512	4–48	28–64	12	4		· □ ✓			✓	✓	✓	✓	7	✓	✓	,	/	✓		✓	L2	,	/ /	✓	✓	<b>✓</b> ,			✓							~	<b>/</b>	✓	✓	<b>√</b>	

<sup>1: 16-</sup>bit PIC\* MCU offers SAR ADC, high-speed ADC and Delta-Sigma ADC
2: 16-bit PIC MCU offers general-purpose DAC and audio DAC
3: Class B Safety Features:

L1: Includes WDT, oscillator fail-safe, illegal opcode detect, TRAP, reset trace, register lock, frequency check, CodeGuard™ security, PWM lock\*

PVMM lock available in devices with MC PWM/SMPS PVM peripheral

(5V) 16-bit PIC MCUs and dsPIC DSCs with 5V operating Voltage

Note: Similar family of devices with fewer variations are grouped with the same color coding

Product Family  RepricaseProximity  Confidence Family  Confidence Fami	n Flexibility
Product Family  GBP 100 100 100 100 100 100 100 100 100 10	
## PRINGSEP Framily (Continue)  ## PRINGSEP Framily (Continue)	
Policy   P	
## PRICESSEP Family (Continuture)  ## PRICESSEP Fam	
## DEFICIAL PRIME FROM	DMD F
## DEFICIAL PRIME FROM	and
GBPICASSEPXOKMMSXXX   70   128-512   16-48   44-100   12   4   0   0   0   0   0   0   0   0   0	SLEEP
SEPICASSEP Family (Continued)   Sepical September   September   Sepical September   September   Sepical September   Sept	A ZE SI
GePIC33EPXXXGM6XXX   70   128-512   16-48   44-100   12   4   4   4   4   4   4   4   4   4	DMA IDLE, 9 DOZE XLP VBAT
Gelicaseptoxical Months (70   128-512   16-48   44-100   12   4   V V V V V V V V V V V V V V V V V	
Septimental Control   Septimental   Septim	V V V
deplicasePst2GP806   70   512   52   64   12   4   v   v   v   v   v   v   v   v   v	V V V
GPIC33F-J0GGS001	V V V
dspic33FJ06GS001   40   6   25   18   10   10   7   7	V V V
dsPiC33FJ06GS102/1/A 40 6 25 18-28 10 10 V V V V V 11 V V V L1 V V V V V V V V V	
Septical Septical Section   Septical Section   Septical Septical Section   Septical Septical Section   Septical Septical Section   Septical Sect	V V
A/302	V V
dsPlC33FJ16GS50X       50       16       2       28-44       10       10       √       √       √       √       √       √       √       √       √       √       √       √       √       ✓ </th <th>V V</th>	V V
dsPiC33FJXXGP2/30X 40 12-16 1-2 18-28 12	V V
dsPlC33FJXXMC2/30X 40 12-16 1-2 18-28 12	V V
dsPlC33FJXXGP10X       16       16-32       2       18-44       10       4       ✓	V V
dsPlC33FJXXXGP2/30X       40       32       4-8       28-64       12       4 <td< th=""><th>V V</th></td<>	V V
dsPlC33FJ32GP20X       40       32       4-8       28-64       12       V       V       25       V       V       L1       V	V V
dsPlC33FJXXXGP2/30X       40       32-128       16       28-44       12       4       ✓       ✓       ✓       25       ✓       ✓       ✓       L1       ✓	V V
dsPlC33FJXXXGS406 40 32-64 4-8 64 10	V V
dsPIC33FJXXXGS406 40 32-64 4-8 64 10	V V V
dsPIC33FJ32GS6XX 50 32 4 64-100 10 10 V V V V V 1 V V V V V L1 V V V V V	V V V
401 1000 00 00 00 00 00 00 00 00 00 00 00	
	V V
dsPIC33FJ64GS6XX 50 64 8 64-100 10 10 v v 1 1 v v v 1 L1 v v v v v v v v v v	V V V
dsPIC33FJ32MC20X 40 32 2 28-44 12	V V
dsPIC33FJ32MC30X 40 32 4 28-44 12 4 V V V V 12 V V V L2 V V V V V V V V V V V V V V V	<b>√</b> ✓
dsPIC33FJXXXMC20X 40 64-128 8 28-44 12 4 🗸 🗸 🗸 🗸 12 🗸 🗸 12 🗸 🗸 12 12 12 12 12 12 12 12 12 12 12 12 12	V V V
dsPIC33FJXXXMC80X 40 64-128 16 28-44 12 4 to 16 16 V V V V V V V V V V V V V V V V V	
dsPIC33FJXXXMC5/7XXA 40 64-128 8-16 64-100 12	V V V
dsPIC33FJXXXGP2/3XXA 40 64-128 8-16 64-100 12	V V V
dsPIC33FJXXXGP5/7XXA 40 64-256 16-32 64-100 12	V V V
dsPIC33FJ256MC5/710A 40 256 8-32 100 12	V V V

<sup>1: 16-</sup>bit PIC\* MCU offers SAR ADC, high-speed ADC and Delta-Sigma ADC
3: Class B Safety Features:
1: 16-bit PIC MCU offers general-purpose DAC and audio DAC
3: Class B Safety Features:
1: 1- Includes WDT, oscillator fail-safe, illegal opcode detect, TRAP, reset trace, register lock, frequency check, CodeGuard™ security, PWM lock\*
1: Includes VDT, oscillator fail-safe, illegal opcode detect, TRAP, reset trace, register lock, frequency check, CodeGuard™ security, PWM lock\*
1: Includes VDT, oscillator fail-safe, illegal opcode detect, TRAP, reset trace, register lock, frequency check, CodeGuard™ security, PWM lock\*
1: Includes VDT, oscillator fail-safe, illegal opcode detect, TRAP, reset trace, register lock, frequency check, CodeGuard™ security, PWM lock\*
1: Includes VDT, oscillator fail-safe, illegal opcode detect, TRAP, reset trace, register lock, frequency check, CodeGuard™ security, PWM lock\*
1: Includes VDT, oscillator fail-safe, illegal opcode detect, TRAP, reset trace, register lock, frequency check, CodeGuard™ security, PWM lock\*
1: Includes VDT, oscillator fail-safe, illegal opcode detect, TRAP, reset trace, register lock, frequency check, CodeGuard™ security, PWM lock\*
1: Includes VDT, oscillator fail-safe, illegal opcode detect, TRAP, reset trace, register lock, frequency check, CodeGuard™ security, PWM lock\*
1: Includes VDT, oscillator fail-safe, illegal opcode detect, TRAP, reset trace, register lock, frequency check, CodeGuard™ security, PWM lock\*
1: Includes features of L1 + CRC

<sup>(5</sup>V) 16-bit PIC MCUs and dsPIC DSCs with 5V operating Voltage Note: Similar family of devices with fewer variations are grouped with the same color coding

INTEGRATED ANALOG: Sensor Interfa	
ADC: Analog-to-Digital Converter	General-purpose ADC with up to 10-/12-/16-bit resolution
HS ADC: High-Speed Analog-to-Digital Converter	High-speed SAR ADC with 12-bit resolution and sampling speed of 10 Msps
ΔΣ ADC: Delta-Sigma Analog-to- Digital Converter	Bipolar differential inputs configurable gain integrated PGA Delta-Sigma ADC
DAC: Digital-to-Analog Converter	General-purpose DAC with resolution up 16-bit resolution
ΔΣ DAC: Delta-Sigma Digital-to- Analog Converter	Second-order digital bipolar, two output channel Delta-Sigma DAC with stereo operation support
CVREF: Internal Voltage Reference	Programmable voltage reference with multiple internal and external connections
HS Comp: High-Speed Comparator	General-purpose rail-to-rail comparator with <1 ns response time
<b>OPA/PGA:</b> Operational Amplifier and Programmable Gain Amplifiers	General-purpose op amp and PGAs for internal and external signal source conditioning
WAVEFORM CONTROL: PWM Drive a	and Waveform Generation
CCP/ECCP: (Enhanced) Capture/Compare/PWM	Multi-purpose timers with functionality of the comparable input capture, output compare and PWM with four outputs
SCCP: Single Capture/Compare/PWM	Multi-purpose 16-/32-bit input capture, output compare and PWM
MCCP: Multiple Capture/Compare/PWM	Multi-purpose 16-/32-bit input capture, output compare and PWM with up to six outputs and an extended range of output control features
PWM: Pulse Width Modulation	16-bit PWM with up to nine independent time bases
MC PWM: Motor Control Pulse Width Modulation	Motor control 16-bit PWM with multiple synchronized pulse-width modulation, up to six outputs with four duty cycle generators and resolution up to 1 ns
SMPS PWM: Power Supply Pulse Width Modulation	Power supply 16-bit PWM with multiple synchronized pulse-width modulation, up to eight outputs with four independent time bases and resolution up to 1 ns
IC: Input Capture	Input capture with an independent timer base to capture an external event
OC: Output Compare	Output compare with an independent time base to compare value with compare registers and generate a single output pulse, or a train of output pulses on a compare match event
CLOCKS AND TIMERS: Signal Measu	rement with Timing and Counter Control
8-/16-/32-bit Timer	General-purpose 8-/16-/32-bit timer/counter with compare capability
RTCC: Real-Time Clock/Calendar	Real-time clock and calendar with a Binary-Coded Decimal (BCD) clock calendar to maintain accurate timing with external 32/768 kHz crystal
QEI: Quadrature Encoder Interface	Quadrature encoder interface to increment encoders for obtaining mechanical position data
SAFETY AND MONITORING: Hardwa	re Monitoring and Fault Detection
LVD: Low-Voltage Detection	LVD detects drops in system operating voltage using an internal reference voltage for comparison, especially in battery-powered applications
WDT: Watch Dog Timer	System supervisory circuit that generates a reset when software timing anomalies are detected within a configurable critical window
DMT: Dead Man Timer	System supervisory circuit that generates a reset when instruction sequence anomalies are detected within a configurable critical window
CRC: Cyclical Redundancy Check with Memory Scan	Automatically calculates CRC checksum of Program/DataEE memory for NVM integrity and a general-purpose 16-bit CRC for use with memory and communications data
Class B Safety	Hardware Class B support with Flash error correction, backup system oscillator, WDT, DMT, CRC scan, etc.

COMMUNICATIONS: General, Industri	al, Lighting and Automotive
USB OTG: Universal Serial Bus	USB 2.0 full-speed (host and device), low-speed (host) and On-The-Go (OTG) support
CAN/CAN FD: Controller Area Network	Industrial- and automotive-centric communication bus
<b>UART:</b> Universal Asynchronous Receiver Transceiver	General-purpose full-duplex, 8-bit or 9-bit data serial communications with optional ISO 7816 Smart Card support
LIN: Local Interconnect Network	Industrial- and automotive-centric communication bus     Support for LIN when using the EUSART
IrDA: Infrared Data Association	IrDA encoder and decoder logic support through UART
I <sup>2</sup> C: Inter-Integrated Circuit	General purpose 2-wire inter IC serial interface for communicating with other peripherals or microcontroller devices
SPI: Serial Peripheral Interface	General-purpose 4-wire synchronous serial interface for communicating with other peripherals or microcontroller devices
I2S: Data Converter Interface	3-wire synchronous half duplex serial interface to handle the stereo data
SENT: Single-Edge Nibble Transmission	SENT is an unidirectional, single-wire serial communications protocol designed for point-to-point transmission of signal values
Parallel Port	General-purpose parallel communication interface
USER INTERFACE: Capacitive Touch	Sensing and LCD Control
CTMU and mTouch Sensing: Microchip Proprietary Capacitive Touch Technology Using Charge Time Measurement Unit	Capacitive sensing for touch buttons, sliders and system measurements and detection (e.g. water level, intrusion detection, etc.) using an analog CTMU that provides accurate differential time measurement between pulse sources and asynchronous pulse generation
LCD: Liquid Crystal Display	Highly integrated segmented LCD controller
GFX: Graphics Controller	Highly integrated graphics controller supporting direct interface with display glasses with built-in analog drive for individual pixel control
SECURE DATA: Hardware Integrated 0	Cryptographic Engine
Cryptographic Engine	Independent NIST-standard encryption and decryption engine
Secure Key Storage	Multiple option for key storage, selection and management
RNG: Random Number Generator	Hardware true random number generation
SYSTEM FLEXIBILITY: System Periph	erals and Interconnects
Dual Partition Flash	Dual partition Flash operation, allowing the support of robust bootloader systems and fail-safe storage of application code, with options designed to enhance code security
CLC: Configurable Logic Cell	Integrated combinational and sequential logic with custom interconnection and re-routing of digital peripherals
PPS: Peripheral Pin Select	I/O pin remapping of digital peripherals for greater design flexibility and improved EMI board layout
PTG: Peripheral Trigger Generator	User-programmable sequencer, capable of generating complex trigger signal sequences to coordinate the operation of other peripherals
DMA: Direct Memory Access	Direct memory access for transfer of data between the CPU and its peripherals without CPU assistance
IDLE, SLEEP and PMD	Low-power saving modes
DOZE	Ability to run the CPU core slower than the system clock used by the internal peripherals
XLP: eXtreme Low Power Technology	XLP technology devices with extreme low-power operation modes for battery/low power applications
VBAT	Hardware-based power mode that maintains only the most critical operations when a power loss occurs on VDD

Learn more about 16-bit PIC microcontrollers at www.microchip.com/16bit.

The Microchip name and logo, the Microchip Technology Incorporated in the U.S.A. © 2018, Microchip Technology Inc. All Rights Reserved. 5/18.

