

Differences between ICP2(G3) and ICP2 Families

1 General

- Starting from year 2019 Softlog Systems manufactures ICP2(**G3**), ICP2-GANG(**G3**), ICP2-COMBO(**G3**) and ICP2-Portable(**G3**) programmers instead of legacy ICP2, ICP2-GANG, ICP2-COMBO and ICP2-Portable
- Due to nearly full compatibility (mechanical and electrical) all of them are usually referred as ICP2, ICP2-GANG, ICP2-COMBO and ICP2-Portable respectively. If difference is applied then they are referred as "G3 products" and "non-G3 products". ICP2-Portable specific differences are shown in paragraph 2 below
- The comparison below is not applied to ICP2(HC)

###	Parameter	ICP2 Family (non-G3 products)	New - ICP2(G3) Family (G3 products)
General			
1.	Start of manufacturing	ICP2, ICP2-GANG: year 2006 ICP2-COMBO: year 2014 ICP2-Portable: year 2010	ICP2(G3), ICP2-GANG(G3) and ICP2-COMBO(G3): year 2016 ICP2-Portable(G3): year 2018
2.	End-of-life manufacturing	Dec-2018	New product
3.	PIC17C support	Yes	No
4.	Pin 8 function on connector D-type 15 (pin B3/B7/B11/B15 on ICP2-COMBO)	T_VTEST (PIC17C dedicated programming output)	T_DIO_2 (general purpose programming I/O)
5.	External flash size (for environment storage)	ICP2/ICP2-GANG: 1 or 4MByte (depends on manufacturing period). ICP2-COMBO and ICP2-Portable: 4MByte	32MByte
New Families and Protocols			
6.	PIC32MZ/MK/MM support	No	Yes
7.	Support for CryptoAuthentication™ devices	No	Yes
8.	Support for SPI, SWD, JTAG, UPDI, TPI, PDI, UART, Microwire, SWIM, SWI, BDI, C2, SBW and other popular protocols	No	Yes
Programming Time			
9.	Programming time	Standard	Faster
10.	PIC32MX clock frequency	Software (about 1MHz)	Software, 2.5MHz and 10MHz
11.	Example 1: PIC24EP512GU814 (~550K, @ 1.67MHz)	29.9 sec	19.8 sec
12.	Example 2: PIC32MX795F512L (~536K)	39.9 sec @ 1MHz	15.5 sec @ 10MHz
13.	Environment transfer time (~550K)	27 sec	13 sec
Electrical Parameters			
14.	VDD range	2.0...5.5V	1.8...5.5V
15.	VPP range	2.0...13.5V	1.8...13.5V
16.	I/O range (T_SCK, T_MOSI, T_MISO, T_DIO_x)	2.0...5.5V	1.8...5.5V
17.	VPP current limit	25...50mA (depends on VPP voltage) – not including ICP2-Portable	30mA (contact Softlog Systems if 100mA is required) – not including ICP2-Portable(G3)
18.	I/O output impedance (T_SCK, T_MOSI, T_MISO, T_DIO_x)	100-175Ω (depends on manufacturing period)	100Ω
19.	Programmable pull-up and pull-down resistors 2.2K on T_SCK, T_MOSI and T_MISO pins	No	Yes
20.	Communication speed via USB (firmware)	460,800bps	921,600bps
21.	VDD rise and fall time	Small differences, should not affect programming – see particular product specifications	
22.	VPP rise and fall time	Small differences, should not affect programming – see particular product specifications	
23.	Clock/data filter	G3 products contain in-series resistors 100 Ohm on clock/data lines while non-G3 ones contain 150 Ohm: it provides slightly different "RC filter". We recommend to add 33pF (22pF-47pF) capacitor between T_SCK (pin 3) and GND (pin 2) on ***Target uC side*** of the cable – it'll probably fix the problem (if it exists) For complicated cases contact support@softlog.com	

Differences between ICP2(G3) and ICP2 Families

2 Difference between ICP2-Portable and ICP2-Portable(G3)

	<i>Description</i>	<i>ICP2-Portable (non-G3 product)</i>	<i>New - ICP2-Portable (G3) (G3 product)</i>
1.	Size	130 x 65 x 25 mm	145 x 80 x 28 mm (bigger)
2.	Battery	3xAAA	3xAA (x3 capacity)
3.	Battery compartment	No (batteries on PCB)	Yes
4.	Battery life	Standard	Better
5.	USB driver	Silicon Labs	FTDI
6.	USB connector	USB type B	Mini USB
7.	Supplied USB cable	Standard A-B	Standard A - mini-USB
8.	External power voltage	9V...15V	12V...15V
9.	VDD current limit w/o power supply (USB or/and batteries)	100 mA	100mA (firmware 33.15 or higher)
10.	VDD current limit with power supply	100 mA	100mA

3 Revision History

- Jan-2022:
 - ICP2-Portable(G3) VDD current limit w/o power supply increased to 100mA (old: 40mA)
 - minor corrections
- Aug-2019: added description of clock/data filter
- Jul-2018: original document