

***TASKING***<sup>®</sup>

**ST SPC58 H LINE EMULATION ADAPTER**

**HARDWARE USER MANUAL**

V1.9, July 2024

## **General safety instructions**

Please read the following safety precautions carefully before putting this device to use to avoid any personal injuries, damage to the instrument, or to the target system. Use this instrument only for its intended purpose as specified by this manual to prevent potential hazards.

## **Use included power cord and power supply**

The enclosed power supply has been approved for use by TASKING. Please contact TASKING if you need to consider an alternative power.

## **Use grounding wire**

Prior to applying power to either the BlueBox or the target, connect the device and the target system together with the included grounding wire. This is to avoid potential damage caused by any voltage difference between the device and the target system.

## **Use proper overvoltage protection**

Ensure proper protection to avoid exposing the BlueBox device or the operator to overvoltage surges (e.g. caused by thunderstorm, mains power).

## **Do not operate without cover**

Do not operate the device with cover removed.

## **Avoid circuit and wire exposure**

Do not touch exposed components or wires when the device is powered.

## **Do not operate with suspected damage**

If you suspect damage may have occurred, the BlueBox device must be inspected by qualified service personnel before further operation.

## **Do not operate the device outside its rated supply voltage or environmental range**

Consult with TASKING before using equipment outside of the parameters provided in this manual.



This symbol is used within the manual to highlight further safety notices.

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# Introduction

ST SPC58 (Chorus) H Line Emulation Adapter primary use case is providing Nexus trace functionality for the SPC58 H Line devices in the:

- 144-pin
- 176-pin
- 302-pin

where Nexus trace port is not available.



The Emulation Adapter might differ in some peripherals from the target device; therefore, the device datasheet should be checked.

Alternative use case is a Standalone operation, where you can start developing and testing the application while his target may not be available yet.

ST SPC58 H Line Emulation Adapter is based on the "superset" SPC58NH92C5 device in the BGA386 package on which the Nexus trace port is also exposed and available (P1 connector). It's a "superset" device with 10MB program flash and can emulate all ST SPC58 H Line devices in smaller packages.

Complete Emulation Adapter is split into individual parts which makes it flexible when support for different target packages is required. A typical setup in conjunction with the target contains:

- IEA-SPC58NH (Microcontroller part)
- Conversion board
- Solder part



More information about our products via [sales@tasking.com](mailto:sales@tasking.com).

# Package content

ST SPC58 H Line Emulation Adapter is delivered with all components required for a standalone operation. Adaptation package for the Target board adaptation must be **ordered separately**.

## ST SPC58 H Line Emulation Adapter

Ordering code:  
IEA-SPC58NH



## Power supply package

### Power converter

Ordering code:  
IEA-PS



### Power adapter

Ordering code:  
IT9V-PS



## GND Wire

Ordering code:  
BB-WIRE



## Crystal 20 MHz



If you purchase the Power supply package individually, the Power adapter (IT9V-PS) must be ordered separately.

# Adaptation packages content

Conversion boards connect between the Emulation Adapter and the matching Solder part which is being soldered on the Target side.

Pin number	Conversion board	Type	Extender	Solder part
144	IEA-SPC58NH-TQ144	Fixed		IA144TQ-SOLDER
176	IEA-SPC58NH-TQ176	Fixed		IA176TQ-SOLDER
302	IEA-SPC58NH-BGA302	Fixed (BGA)	IA302LFBGA-EXTENDER	IA302LFBGA-SOLDER

**BGA Adaptation:** The Target can have electronic components placed around the Microcontroller within the Emulation Adapter (EA) "ground floor", which impede connecting the EA to the Target. In such cases the distance of the EA from the Target can be optionally increased in steps of 3.25 mm by inserting the optional Extender. Not more than two Extenders should be used since every connector affects signal integrity.



- With no Extender the lowest point of the EA is approx. 4.35 mm away from the Target.
- With one Extender the lowest point of the EA is approx. 7.6 mm away from the Target.
- With two Extenders the lowest point of the EA is approx. 10.85 mm away from the Target.

Note that by adding the Extender or two, makes the whole setup less robust. Use caution with Extenders to prevent breaking of the hardware setup or just part of it.

## Fixed Adaptation

The adaptation is delivered with a slot screw, which can be used to achieve a more solid and stable fixing of the Conversion board and the Solder part.

Conversion board

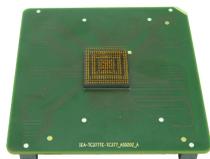


Solder part

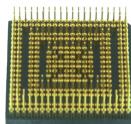


## BGA Adaptation

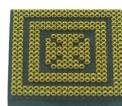
Conversion board



Extender (optional)



Solder part



## IEA-SPC58NH Emulation Adapter



*Top/bottom side of the Emulation Adapter*

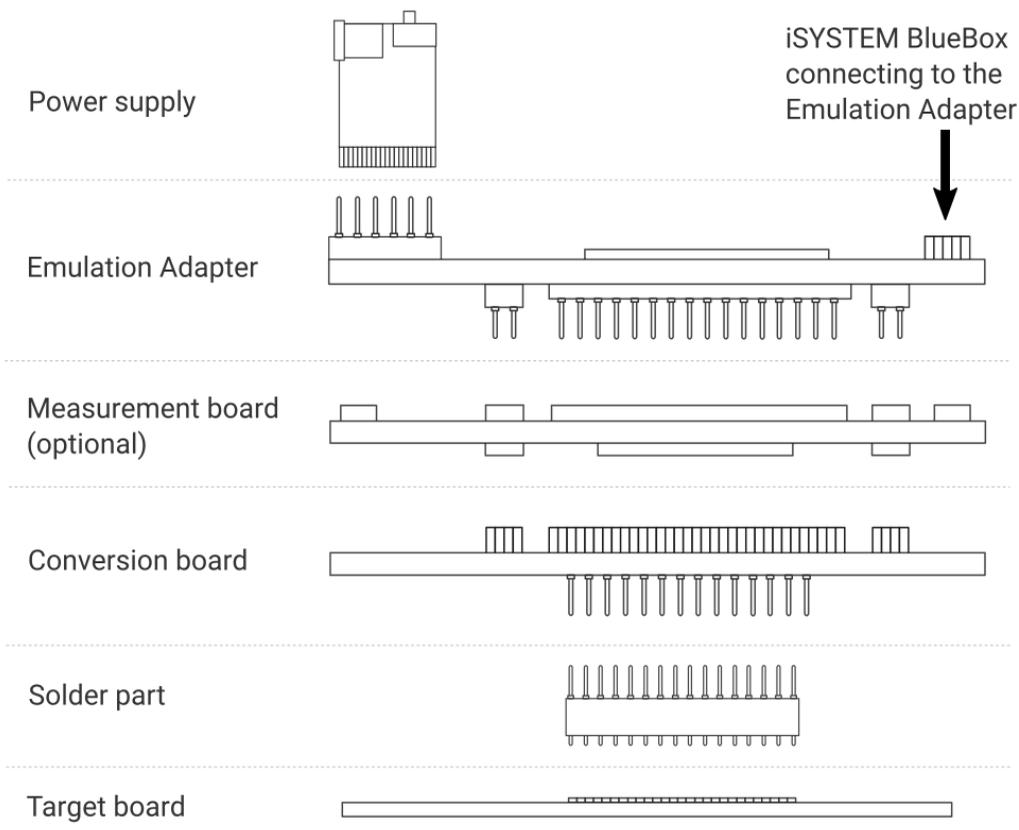
Introduction to Emulation Adapter (video)  
[isystem.com/ea-intro](http://isystem.com/ea-intro)

How to connect Hardware (video)  
[isystem.com/connect-hardware](http://isystem.com/connect-hardware)

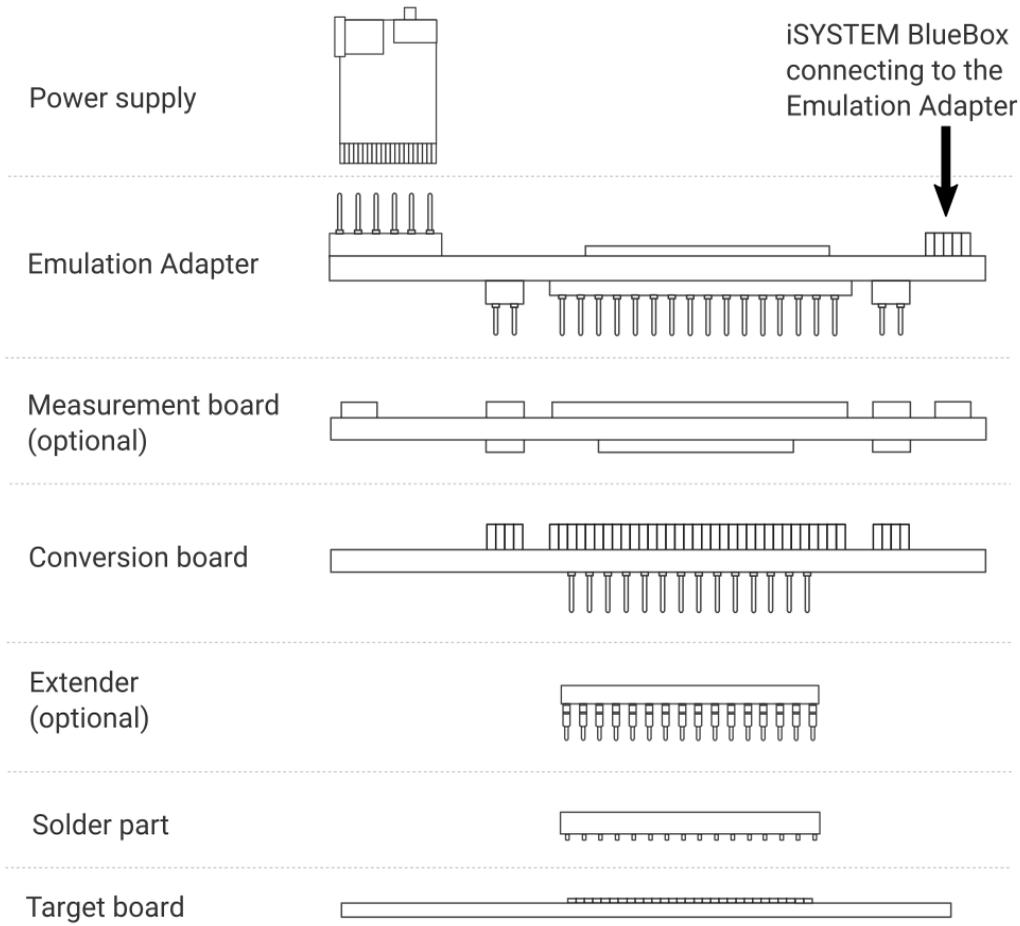
# Adaptation setup

Emulation Adapter offers the following adaption setups.

## Fixed Adaptation



# BGA Adaptation



# Screws

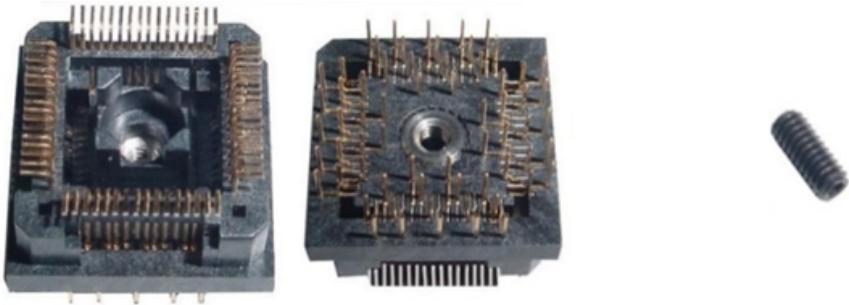
## Slot screw

The Slot screw (30mm) is used to fix the Conversion board to the Solder part. The setup becomes mechanically more robust. Screw the Conversion board to the Solder part first, before the Emulation Adapter is attached on top and watch out not to break out the Solder part, e.g., if you accidentally hit the Emulation Adapter from the side.



## Short Hexagon socket screw

Short Hexagon socket screw, which comes with the Solder part, is not applicable with this Emulation Adapter setup.



# Configuration

## J1: Target reset configuration

Jumper J1 connects the reset line and the target reset line. By default, J1 is populated.

When having problems establishing the initial debug session with the Emulation Adapter (EA), try to remove J1 and see if it makes any difference.

## J2 and J3: Clock source configuration

Jumpers J2 and J3 select external clock source (XOSC) for the emulation device. Per default, both jumpers are set to position 1-2, which yields the external clock (XOSC) source being used from the Target board.

If an oscillator in the Target is not an option and the target crystal doesn't oscillate in conjunction with the EA, the EA can also provide the external clock (XOSC) source by setting jumpers J2 and J3 in position 2-3. In this case, a crystal circuit must be built on the EA.



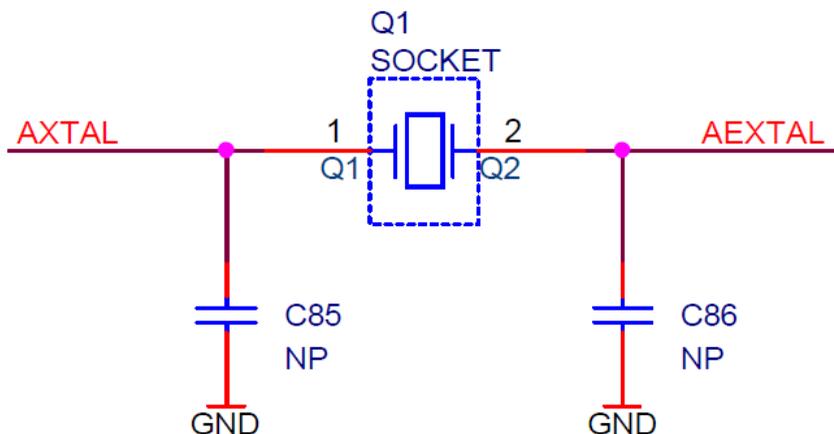
Note that the EA may not operate when crystal circuit is used in the target. Typical design guideline is that the crystal should be as close as possible to the microcontroller. It can happen that the target crystal does not oscillate in conjunction with the EA since clock lines (XTAL, EXTAL) between the target crystal and the emulation device on the EA become too long, inevitably too much affecting the impedance of the crystal circuit. If a "standalone" oscillator is used instead of the crystal circuit, no problems are expected.



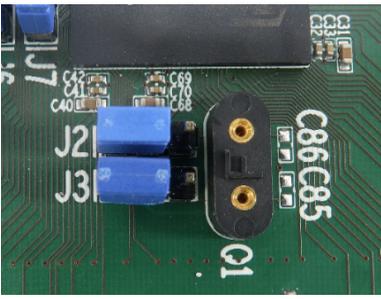
The crystal packed separately in the antistatic bag comes along the Emulation Adapter. It can be used to feed an external clock source (XOSC) to the emulation device by inserting the crystal into the Q1 socket. If a different clock frequency is required, use suitable crystal and insert it into the Q1 socket.

The emulation adapters of revision A1 were delivered with a 40 MHz crystal, while the adapters of revision A2 or higher are delivered with a 20 MHz crystal.

Crystal Q1 is located in the corner of the EA, next to the 38-pin Mictor connector P1 and per default not populated:



Capacitors C85 and C86, for which pads are provided on the EA PCB, are not populated since the microcontroller provides already the internal load capacitors for 40MHz crystal oscillator operation.



## J4 and J5: GND connecting points



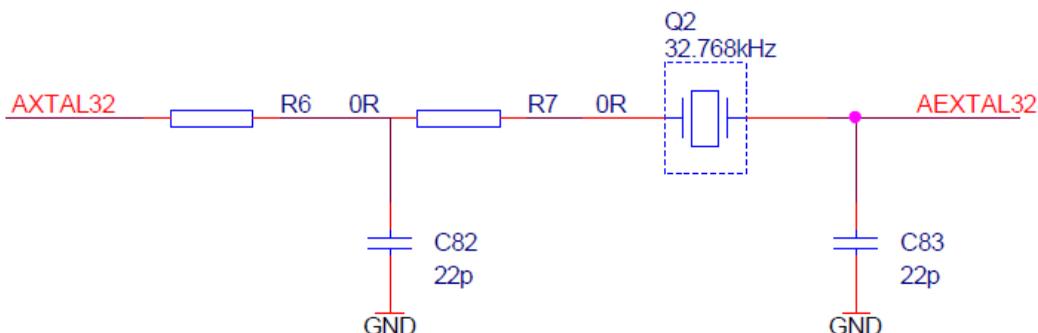
Real target microcontroller in the 176-pin package provides an exposed GND pad in the middle of the microcontroller at the bottom side of the package. This provides GND connection between the microcontroller and the target.

In case of the EA usage, the solder part is soldered instead of the microcontroller. Note that available solder parts until the introduction of this EA, haven't provided support for the exposed GND pad.

Ensure a replacement GND connection between the EA and the target using a dedicated GND wire. Without this connection, the system will not work. Use provided GND wire which comes along the EA and plug it to the pin J5 (see picture above) on the EA. Connect the other side to the ground potential on the target - as close as possible to the microcontroller respectively solder part being soldered instead of the microcontroller. This connection must be quality and reliable otherwise debugging and tracing over the Nexus trace port may not work. Alternatively, GND connection can be also established over the J4 ground bridge.

## J6 and J7: RTC Clock source

Jumpers J6 and J7 select the RTC Clock source (32,768 kHz XTAL) for the emulation device. Per default, both jumpers are set to position 1-2, which yields the clock source being used from the target.



If an oscillator in the target is not an option and the target crystal doesn't oscillate in conjunction with the EA, the EA can also provide the clock source (XTAL) by setting jumpers J6 and J7 in position 2-3. In this case, a crystal circuit must be built on the EA.

Note that the Emulation Adapter may not operate when crystal circuit is used in the target. Typical design guideline is that the crystal should be as close as possible to the microcontroller.



It can happen that the target crystal does not oscillate in conjunction with the Emulation Adapter since clock lines (XTAL, EXTAL) between the target crystal and the emulation device on the Emulation Adapter become too long, inevitably too much affecting the impedance of the crystal circuit. If a "standalone" oscillator is used instead of the crystal circuit, no problems are expected.

## P2: Power supply configuration

Emulation Adapter Power supply is configured via the unshrouded 26-pin 2.54 mm header (P2).

Signal direction	Signal	Pin	Pin	Signal	Signal direction
Target	TVDD_HV_OSC	1	2	VDD_HV_OSC	Emulation device
Target	TVDD_HV_ADR_S	3	4	VDD_HV_ADR_S	Emulation device
Target	VDD_HV_ADV_S	5	6	VDD_HV_ADV_S	Emulation device
Target	TVDD_HV_FL A	7	8	VDD_HV_FL A	Emulation device
Target	TVDD_HV_IO_MAIN	9	10	VDD_HV_IO_MAIN	Emulation device
Target	TVDD_HV_IO_ETH	11	12	VDD_HV_IO_ETH	Emulation device
Target	TVDD_HV_IO_EMMC	13	14	VDD_HV_IO_EMMC	Emulation device
Not connected	NC	15	16	NC	Not connected
Not connected	NC	17	18	NC	Not connected
Not connected	NC	19	20	NC	Not connected
Ground	GND	21	22	GND	Ground
Ground	GND	23	24	GND	Ground
Ground	GND	25	26	KEY	

*P2 Signal description*

Refer to the microcontroller user's manual for more details which power supply designation in the above table belongs to which power supply.

By default, all jumpers are set and connect target power supply coming from the target to the microcontroller residing on the Emulation Adapter. In principle, pins 1-2, 3-4, 5-6, 7-8, 9-10, 11-12 and 13-14 must be bridged only but for the convenience and ease of use all jumpers are set, except for pins 25-26. Pin 26 is the polarizer key preventing incorrect connection of the IEA-PS power supply, when being connected.

If a different power source is to be used (e.g., in case of a standalone operation), all jumpers must be removed and power source must be applied to:

- VDD\_HV\_OSC (pin 2),
- VDD\_HV\_ADR\_S (pin 4),
- VDD\_HV\_ADV\_S (pin 6),
- VDD\_HV\_FL A (pin 8),
- VDD\_HV\_IO\_MAIN (pin 10),
- VDD\_HV\_IO\_ETH (pin 12),
- VDD\_HV\_IO\_EMMC (pin 14),
- GND (pins 22, 24, 26) signals.

The Emulation Adapter comes delivered together with the IEA-PS emulation adapter power supply, which simply plugs into the P2 header row, providing the necessary power supply for Emulation Adapter standalone operation. Double check that the power supply is configured properly for this particular Emulation Adapter.

# Connectors

## P1: Nexus trace port

38-pin Mictor connector P1 exposes Nexus trace port and has the following pinout:

Signal	Pin	Pin	Signal
NC	1	2	NC
NC	3	4	NC
MDO9	5	6	NC
NC	7	8	MDO8
RSTIN	9	10	EVTIN
TDO	11	12	Vref
MDO10	13	14	NC
TCK	15	16	MDO7
TMS	17	18	MDO6
TDI	19	20	MDO5
NTRST	21	22	MDO4
MDO11	23	24	MDO3
NC	25	26	MDO2
NC	27	28	MDO1
NC	29	30	MDO0
NC	31	32	EVTO
NC	33	34	MCKO
NC	35	36	MSE01
NC	37	38	MSE00

*38-pin Mictor pinout*

Signal Direction is described from the BlueBox perspective.



Be aware that debug and trace signals from the Emulation adapter superset device are not connected to the target board. They are exposed only to the connectors on the Emulation adapter.

## P3 – P6: Emulation device pinout

Connectors P3, P4, P5 and P6 on the top side of the EA expose all emulation device signals toward the Conversion board through which the EA adapts to different pin count packages.

# Conversion board configuration

## IEA-SPC58NH-BGA302

Conversion board IEA-SPC58NH-BGA302 consist of 39 DIP switches, which define which alternate port is connected to a specific CPU pin.

With the original microcontroller in the BGA302 package, this is configured through the application software. However, when using the Emulation Adapter based on the BGA386 "superset" device, this configuration has to be performed manually through jumpers DIP1-DIP39 since for some reason each of the alternate ports is routed to an individual physical pin on the BGA386 device without the possibility for controlling routing by means of application software.

For example, with the original microcontroller in the BGA302 package, the application software can route either port PQ[15] or port PA[0] to pin A17. However, with the "superset" microcontroller in the BGA386 package, port PQ[15] is fixed connected to pin L22 and port PA[0] to pin B18. Hence with the Emulation Adapter you can define with the jumper DIP1 whether port PQ[15] or port PA[0] is routed to target pin A17 on the 302-pin conversion board.



Set all the DIPs accordingly to exactly match with your application software configuration. Any mismatch in configuration will yield application not operating properly!

DIPs are by default in position 1-2 (enabled).



DIP	302-pin CPU Pin Number	DIP position 1-2 (Default)	DIP position 2-3
DIP1	A17	PA[0]	PQ[15]
DIP2	A18	PA[1]	PQ[12]
DIP3	W16	PA[3]	PN[9]
DIP4	B16	PA[10]	PR[6]
DIP5	A15	PA[11]	PR[8]
DIP6	C19	PA[12]	PQ[13]
DIP7	B17	PA[13]	PQ[14]
DIP8	W18	PA[15]	PN[12]
DIP9	Y15	PB[8]	PN[8]
DIP10	Y16	PD[8]	PN[10]
DIP11	D20	PE[8]	PQ[11]
DIP12	B14	PE[10]	PR[12]
DIP13	B15	PE[11]	PO[1]
DIP14	Y17	PF[6]	PN[11]
DIP15	W17	PF[7]	PP[14]
DIP16	U19	PF[8]	PQ[1]
DIP17	P20	PF[9]	PN[13]
DIP18	P19	PF[10]	PN[14]
DIP19	R20	PF[11]	PN[15]
DIP20	R19	PF[12]	PO[0]
DIP21	E14	PG[15]	PR[0]
DIP22	D15	PH[0]	PR[2]
DIP23	D14	PH[1]	PR[4]
DIP24	E13	PH[2]	PR[10]
DIP25	A14	PH[3]	PR[14]
DIP26	T20	PH[5]	PQ[6]
DIP27	T17	PH[6]	PQ[7]
DIP28	D11	PH[7]	PS[5]
DIP29	D12	PH[8]	PS[3]
DIP30	A13	PH[9]	PO[2]
DIP31	D13	PH[10]	PS[0]
DIP32	Y18	PJ[0]	PP[15]
DIP33	Y19	PJ[1]	PQ[0]
DIP34	V20	PJ[2]	PS[6]
DIP35	T19	PJ[4]	PQ[5]
DIP36	R17	PJ[9]	PQ[2]
DIP37	P16	PJ[10]	PQ[3]
DIP38	P17	PJ[11]	PQ[9]
DIP39	N17	PJ[12]	PQ[8]

## IEA-SPC58NH-TQ176

Conversion board IEA-SPC58NH-TQ176 consist of 36 jumpers which define which alternate port is connected to a specific CPU pin.

With the original microcontroller in the QFP176 package this is configured through the application software. However when using the Emulation Adapter based on the BGA386 "superset" device, this configuration has to be performed manually through jumpers J1-J36 since for some reason each of the alternate ports is routed to an individual physical pin on the BGA386 device without the possibility for controlling routing by means of application software.

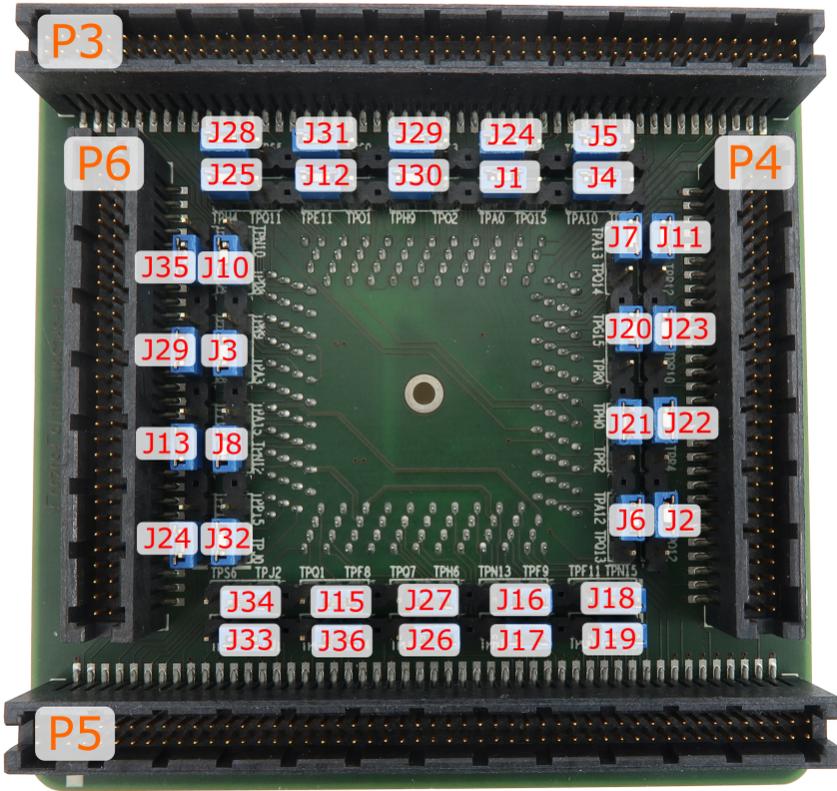
For example, with the original microcontroller in the QFP176 package, the application software can route either port PQ[15] or port PA[0] to pin 137. However, with the "superset" microcontroller in the BGA386 package, port PQ[15] is fixed connected to pin L22 and port PA[0] to pin B18. Hence with the Emulation Adapter you can define with the jumper J1 whether port PQ[15] or port PA[0] is routed to target pin 137 on the 176-pin conversion board.



Set all the jumpers accordingly to exactly match with your application software configuration. Any mismatch in configuration will yield application not operating properly!

Jumpers are by default set to position 1-2.

Following picture shows jumpers location on the top side of the conversion board:



Silkscreen on PCB revision A does not reflect correct jumper signal names, please refer to the table below.

Jumper	176-pin CPU Pin Number	Jumper position 1-2 (Default)	Jumper position 2-3
J1	137	PA[0]	PQ[15]
J2	134	PA[1]	PQ[12]
J3	82	PA[3]	PN[9]
J4	142	PA[10]	PR[6]
J5	143	PA[11]	PR[8]
J6	135	PA[12]	PQ[13]
J7	136	PA[13]	PQ[14]
J8	88	PA[15]	PN[12]
J9	81	PB[8]	PN[8]
J10	83	PD[8]	PN[10]
J11	145	PE[10]	PR[12]
J12	146	PE[11]	PO[1]
J13	84	PF[6]	PN[11]
J14	85	PF[7]	PP[14]
J15	90	PF[8]	PQ[1]
J16	95	PF[9]	PN[13]
J17	96	PF[10]	PN[14]
J18	97	PF[11]	PN[15]
J19	98	PF[12]	PO[0]
J20	138	PG[15]	PR[0]
J21	140	PH[0]	PR[2]
J22	141	PH[1]	PR[4]
J23	144	PH[2]	PR[10]
J24	147	PH[3]	PR[14]
J25	148	PH[4]	PQ[11]
J26	93	PH[5]	PQ[6]
J27	94	PH[6]	PQ[7]
J28	152	PH[7]	PS[5]
J29	151	PH[8]	PS[3]
J30	150	PH[9]	PO[2]
J31	149	PH[10]	PS[0]
J32	86	PJ[0]	PP[15]
J33	87	PJ[1]	PQ[0]
J34	89	PJ[2]	PS[6]
J35	91	PJ[3]	PQ[4]
J36	92	PJ[4]	PQ[5]

## IEA-SPC58NH-TQ144

Conversion board IEA-SPC58NH-TQ144 consist of 24 DIP switches which define which alternate port is connected to a specific CPU pin.

With the original microcontroller in the QFP144 package this is configured through the application software. However when using the Emulation Adapter based on the BGA386 "superset" device, this configuration has to be performed manually through jumpers DIP1-DIP24 since for some reason each of the alternate ports is routed to an individual physical pin on the BGA386 device without the possibility for controlling routing by means of application software.

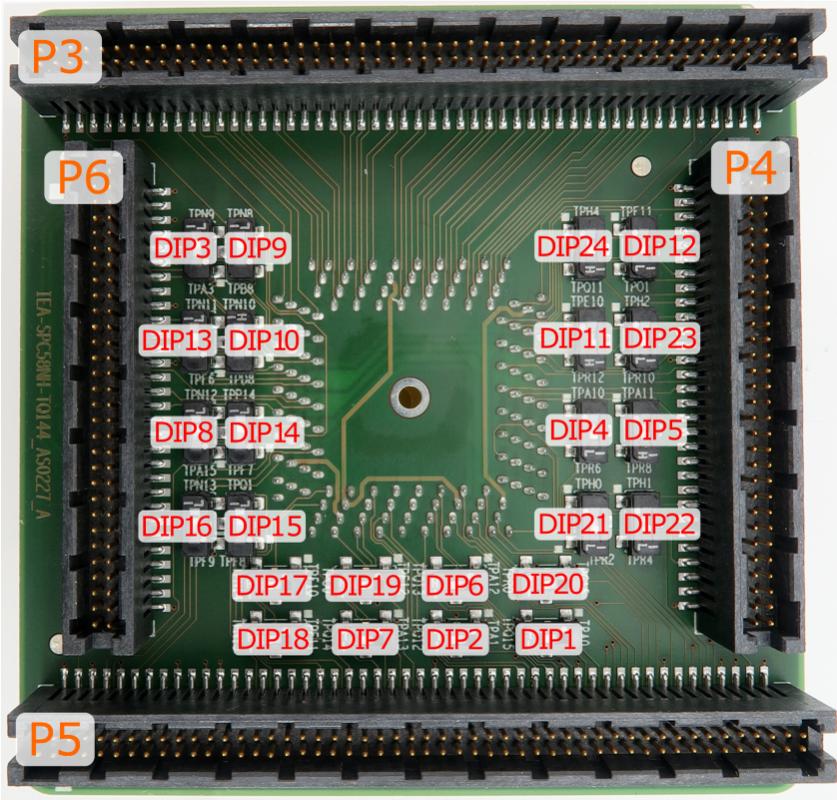
For example, with the original microcontroller in the QFP144 package, the application software can route either port PQ[15] or port PA[0] to pin 113. However, with the "superset" microcontroller in the BGA386 package, port PQ[15] is fixed connected to pin L22 and port PA[0] to pin B18. Hence with the Emulation Adapter you can define with the jumper DIP1 whether port PQ[15] or port PA[0] is routed to target pin 113 on the 144-pin conversion board.



Set all the DIPs accordingly to exactly match with your application software configuration. Any mismatch in configuration will yield application not operating properly!

DIPs are by default in position 1-2 (enabled).

Following picture shows DIPs location on the top side of the conversion board:



DIP	144-pin CPU Pin Number	DIP position 1-2 (Default)	DIP position 2-3
DIP1	113	PA[0]	PQ[15]
DIP2	110	PA[1]	PQ[12]
DIP3	68	PA[3]	PN[9]
DIP4	118	PA[10]	PR[6]
DIP5	119	PA[11]	PR[8]
DIP6	111	PA[12]	PQ[13]
DIP7	112	PA[13]	PQ[14]
DIP8	72	PA[15]	PN[12]
DIP9	67	PB[8]	PN[8]
DIP10	69	PD[8]	PN[10]
DIP11	121	PE[10]	PR[12]
DIP12	122	PE[11]	PO[1]
DIP13	70	PF[6]	PN[11]
DIP14	71	PF[7]	PP[14]
DIP15	73	PF[8]	PQ[1]
DIP16	74	PF[9]	PN[13]
DIP17	75	PF[10]	PN[14]
DIP18	76	PF[11]	PN[15]
DIP19	77	PF[12]	PO[0]
DIP20	114	PG[15]	PR[0]
DIP21	116	PH[0]	PR[2]
DIP22	117	PH[1]	PR[4]
DIP23	120	PH[2]	PR[10]
DIP24	123	PH[4]	PQ[11]

# Power supply package

A Power supply package, which is delivered with the Emulation Adapter, is required when:

- The Emulation Adapter is used as a **standalone device** .
- The target board doesn't provide an accurate supply voltage.
- The target board doesn't provide sufficient current for the Emulation Adapter operation.

The Power converter can supply either 3.3 V or 5 V. Array of jumpers J0 – J9 select 3.3 V or 5 V voltage on the P3 connector, which connects to the Emulation Adapter.

Signal	Pin	Pin	Signal
NC	1	2	J0
NC	3	4	J1
NC	5	6	J2
NC	7	8	J3
NC	9	10	J4
NC	11	12	J5
NC	13	14	J6
NC	15	16	J7
NC	17	18	J8
NC	19	20	J9
GND	21	22	GND
GND	23	24	GND
GND	25	26	KEY

*P3 connector and J0-J9 jumper correlation table*

For example, when J2 is in the 3V3 position, it supplies 3.3 V to pin 6 of the P3 connector. When J2 is in 5V position, it supplies 5 V to pin 6 of the P3 connector pin.



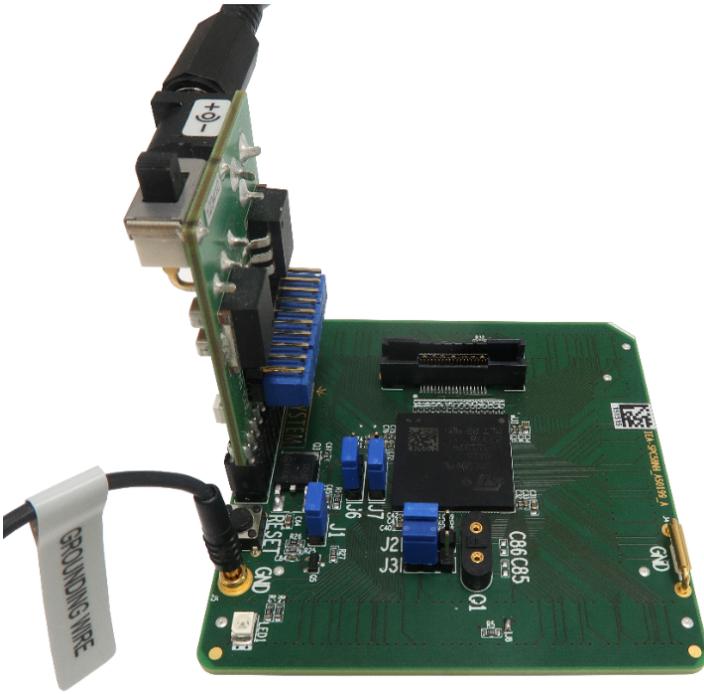
Be careful not to supply 5 V to the microcontroller power supply pin which has declared maximum voltage 3.3 V! Refer to microcontroller documentation for detailed information.

External power supply requirements:

Min Voltage	Max Voltage	Min Power	
8 V	12 V	5 W	

# Standalone operation

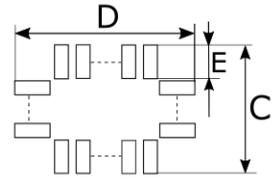
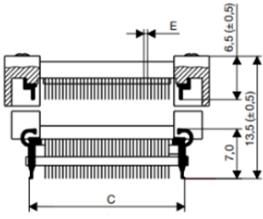
The Emulation Adapter is delivered with all components required for a standalone operation.



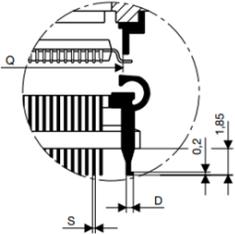
## Power supply

Use enclosed IEA-PS Emulation Adapter Power converter.

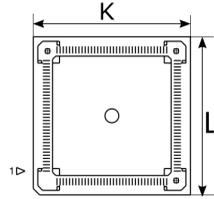
# Mechanical information



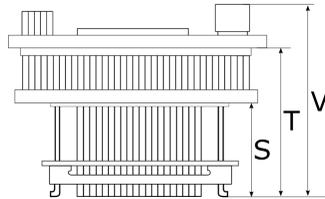
*Solder part solder pad view*



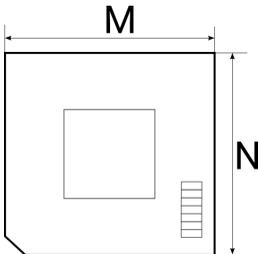
*Side view of the Solder part*



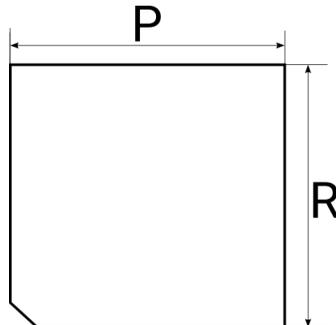
*Top view of the Solder part*



*Side view of the Emulation adapter complete setup - QFP Fixed Adaptation*



*Top view of the Emulation Adapter*



*Top view of the Conversion board*

## Solder parts

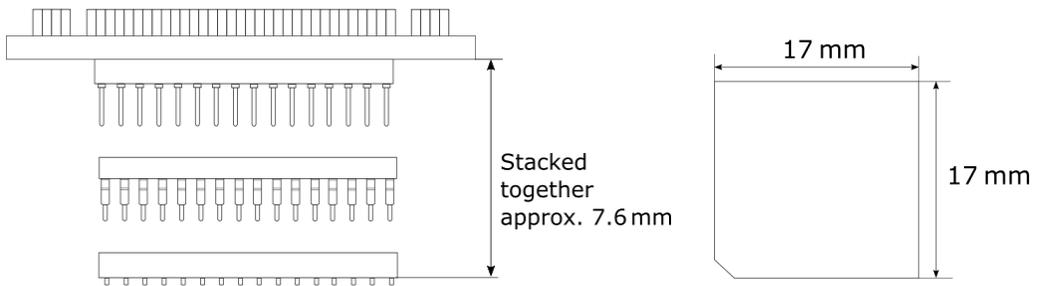
In the case of soldering the Solder part manually, it's highly recommended to prolong the solder pad E on the outer side (e.g., for 1.5–2 mm) during the PCB design. Note that without this modification, it's very difficult to solder the Solder part manually.

Recommended PCB footprint dimensions:

	Unit (mm)						
	A	B	C	D	E	K	L
IA176TQ-SOLDER	26	1.125	27.0	27.0	1.9	29.05	29.05
IA144TQ-SOLDER	22	1.125	23	23	2.15	25.05	25.05

## BGA302 Adaptation

 For ordering the correct amount of Extenders go to the ST SPC58 H Adaptations chapter.



Side view of the Emulation Adapter, one Extender and Solder part  
(each Extender adds approx. 3,25mm)

Top view of the Solder part / Extender

 Use the Surface Mount Technology (SMT) to solder the Solder parts to the user target board instead of the original microcontroller. iSYSTEM provides this soldering service on request too.

## Emulation Adapter

	Unit (mm)						
	M	N	P	R	S	T	V
IEA-SPC58NH	70	70			32.6	36.4	47.5
IEA-SPC58NH-xxxxxx			70	70			

# BGA Assembly

Watch out that pin 1 position and alignment of all pins match when connecting two parts together.

1. Mount the Solder part on the embedded target PCB.
2. If an optional Extender is used, connect it to the Solder part. The Extender can also provide a protection from damaging the Solder part if the Emulation Adapter setup is supposed to be assembled and disassembled during the usage. In such case, it is recommended that the Emulation Adapter is disconnected from the Extender and not from the Solder part. If the Emulation Adapter setup needs to be disassembled, be cautious and gentle during this procedure since all parts of the assembly are very sensitive and pins can easily bent or even break in worst case.

More Extenders can be stacked to gain height between the Emulation Adapter and the Target. This is useful if surrounding components around the Solder part are that high that they prevent connecting the Emulation Adapter. Keep number of Extenders at minimum since every Extender degrades signal integrity of the electrical signals.

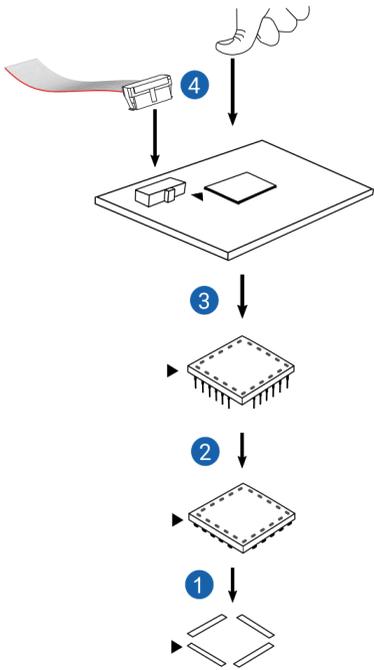
 For ordering the correct amount of Extenders, go to the Adaptation packages content.

3. Connect the Emulation Adapter to the Solder part respectively to the Extender when it's being used.
4. Connect Debug Adapter or Active Probe to the connector on the Emulation Adapter.

Gently press the Emulation Adapter with your thumb to the Target board and keep it stable. With your other hand carefully align the debugger's connecting cable with the matching connector on the Emulation Adapter. Press the cable carefully straight down until a good connection is established.

To prevent breaking of the hardware setup or just part of it, avoid disconnecting and connecting the hardware setup too frequently.

 For more information on how to connect hardware in general, refer to [isystem.com/connect](http://isystem.com/connect).



Emulation Adapter with Debug Adapter

Extender (optional)

Solder part

Electronic circuit PCB

# NQ Pack Assembly

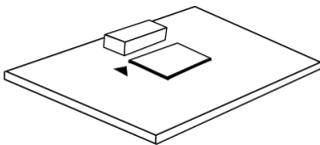
First check that the pin 1 positions on the pad pattern and all of the components are correctly aligned.

1. Mount the NQPACK on the Target.
2. Install the YQPACK after checking for a match with the position of pin 1 for the NQPACK. Then use the guides to affix the YQPACK to the NQPACK.

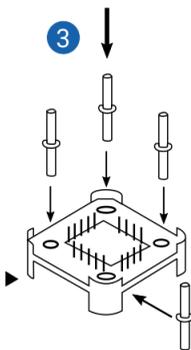


Do NOT use the screws included with the YQPACK for fixing the YQPACK. Do NOT use the screwdriver included with the NQPACK for fixing the Guides. Note that you need to provide your own screwdriver.

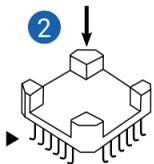
3. Connect the Emulation Adapter after checking for a match with the position of pin 1 for the YQPACK, and connect the Debug Adapter / Active Probe from the BlueBox to the connector on the Emulation Adapter.



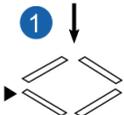
Emulation Adapter



YQPACK with guides



NQPACK



Electronic circuit PCB

# Accessories

Ordering Code	Description
IC70001	iC7mini BlueBox
IC70002	iC7pro BlueBox
IC70003	iC7max BlueBox
IC57000	iC5700 BlueBox
IC57031	iC5700 Hub (3 x FNet & FBridge)
IC57040	CAN/LIN
IC57041	ADIO

## Active probes and Debug Adapters

Ordering code	Description
IC57801 / IC71801	Active Probe Debug
IC50152	38-pin Mictor MPC5xxx Nexus 16-bit Debug Adapter
IC70152	38-pin Mictor MPC5xxx Nexus 16-bit Debug Adapter



More information about our products via [sales@tasking.com](mailto:sales@tasking.com).

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