

12V power Pico-ITX & Thin Mini-ITX Motherboards (08.2020 in-sale)

	<u>GA-PICO3350 (rev. 1.0)</u>	<u>GA-SBCAP3940 (rev. 1.0)</u>	<u>GA-IMB4100TN (rev. 1.0)</u>	<u>GA-IMB370TN (rev. 1.0)</u>
CPU	<ol style="list-style-type: none"> Built in with an Intel[®] Dual-Core Celeron[®] N3350 SoC (2.4 GHz) * Do not disassemble the onboard SoC and the heatsinks by yourself to avoid damage to these components. 2 MB Cache 	<ol style="list-style-type: none"> Built in with an Intel[®] Atom[®] x5-E3940 SoC (1.6 GHz) * Do not disassemble the onboard SoC and the heatsinks by yourself to avoid damage to these components. 2 MB L2 Cache 	<ol style="list-style-type: none"> Built in with an Intel[®] Quad-Core Celeron[®] N4100 SoC (2.4 GHz) * Do not disassemble the onboard SoC and the heatsinks by yourself to avoid damage to these components. 2 MB Cache 	<ol style="list-style-type: none"> Support for 9th and 8th Generation Intel[®] Core™ i9 processors/Intel[®] Core™ i7 processors/Intel[®] Core™ i5 processors/Intel[®] Core™ i3 processors/Intel[®] Pentium[®] processors/Intel[®] Celeron[®] processors in the LGA1151 package L3 cache varies with CPU Intel Core i7-8700T 2.4GHz LGA1151v2 OEM (35W)
Socket	CPU Onboard	CPU Onboard	CPU Onboard	Socket 1151
Chipset				1. Intel [®] Q370 Express Chipset
Memory	<ol style="list-style-type: none"> 1 x DDR3L SO-DIMM socket supporting up to 8 GB of system memory Support for DDR3L 1866/1600 MHz memory module 	<ol style="list-style-type: none"> 1 x DDR3L SO-DIMM sockets supporting up to 8 GB of system memory Support for DDR3L 1866/1600/1333 MHz memory module 	<ol style="list-style-type: none"> 2 x DDR4 SO-DIMM socket supporting up to 16 GB of system memory Dual channel memory architecture Support for DDR4 2133MHz memory module 	<ol style="list-style-type: none"> 2 x DDR4 SO-DIMM socket supporting up to 32 GB of system memory Support for DDR4 2133/2400/2666 MHz memory modules
Onboard Graphics	Integrated in the SoC: <ol style="list-style-type: none"> 1 x HDMI port, supporting a maximum resolution of 3840x2160@30 Hz Maximum shared memory of 512 MB	Integrated in the SoC: <ol style="list-style-type: none"> 1 x D-Sub port, supporting a maximum resolution of 1920x1200@60 Hz 1 x HDMI port, supporting a maximum resolution of 3840x2160@30 Hz Maximum shared memory of 512 MB	Integrated in the SoC: <ol style="list-style-type: none"> 1 x D-Sub port, supporting a maximum resolution of 1920 x 1200@60 Hz 1 x LVDS connector supporting a maximum resolution of 1920 x 1200@60Hz 1 x HDMI 2.0 port, supporting a maximum resolution of 3840 x 	Integrated Graphics Processor-Intel [®] HD Graphics support <ol style="list-style-type: none"> 1 x DisplayPort, supporting a maximum resolution of 4096x2304@60 Hz * Support for DisplayPort 1.2 version, HDCP 2.2, and HDR. 1 x HDMI port, supporting a maximum resolution of

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			2160@60 Hz Maximum shared memory of 512 MB	4096x2160@60 Hz * Support for HDMI 2.0 version, HDCP 2.2, and HDR. Maximum shared memory of 1 GB
Audio	<ol style="list-style-type: none"> 1. Realtek® ALC887codec 2. High Definition Audio 3. 2-channel 	<ol style="list-style-type: none"> 1. Realtek® ALC255 codec 2. High Definition Audio 3. 2-channel 	<ol style="list-style-type: none"> 1. Realtek® ALC887codec 2. High Definition Audio 3. 2/4/5-channel 	<ol style="list-style-type: none"> 1. Realtek® ALC887 codec 2. High Definition Audio 3. 2/4/5.1-channel
LAN	<ol style="list-style-type: none"> 1. Realtek® GbE LAN chips (10/100/1000 Mbit) 	<ol style="list-style-type: none"> 1. 2 x Realtek® GbE LAN chips (10/100/1000 Mbit) 	<ol style="list-style-type: none"> 1. 2 x Realtek® GbE LAN chips (10/100/1000 Mbit) 	<ol style="list-style-type: none"> 1. 2 x Intel® GbE LAN chips (10/100/1000 Mbit)
Expansion Slots	<ol style="list-style-type: none"> 1. 1 x M.2 Socket 1 connector for the wireless communication module (M2_WIFI) 2. 1 x full size Mini PCIe slot (MSATA_MPCIE) * The MSATA_MPCIE slot can also be used as an MSATA connector. 	<ol style="list-style-type: none"> 1. 2 x full size Mini PCIe slots * The MSATA_MPCIE2 slot can also be used as an MSATA connector. (The Mini PCIe slot conforms to PCI Express 2.0 standard.) 	<ol style="list-style-type: none"> 1. 1 x PCI Express x1 slot (The PCI Express x1 slot conforms to PCI Express 2.0 standard.) 2. 1 x M.2 Socket 1 connector for an Intel® wireless module (CNVI) 3. 1 x full size Mini PCIe connector (MINI_PCIE) (The Mini PCIe connector conforms to PCI Express 2.0 standard.) 	<ol style="list-style-type: none"> 1. 1 x PCI Express x4 slot (The PCI Express x4 slot conforms to PCI Express 3.0 standard.) 2. 1 x M.2 Socket 1 connector for an Intel® CNVi or a PCIe wireless module (CNVI) 3. 1 x full size Mini PCIe connector (MSATA_PCIE) * The MSATA_PCIE connector can also be used as an MSATA connector. (The Mini PCIe connector conforms to PCI Express 2.0 standard.)
Storage Interface	<p>Integrated in the SoC:</p> <ol style="list-style-type: none"> 1. 1 x SATA 6Gb/s connectors 2. 1 x MSATA connector (MSATA_MPCIE) 	<p>Integrated in the SoC:</p> <ol style="list-style-type: none"> 1. 2 x SATA 6Gb/s connectors 2. 1 x MSATA connector (MSATA_MPCIE2) * The MSATA_MPCIE2 shares bandwidth with the 	<p>Integrated in the SoC:</p> <ol style="list-style-type: none"> 1. 2 x SATA 6Gb/s connectors 2. 1 x M.2 connector (Socket 3, M key, type 2242/2260/80 SATA and PCIe x1 SSD support) * The M.2 connector operates at 	<p>Chipset:</p> <ol style="list-style-type: none"> 1. 1 x M.2 connector on the back of the motherboard (Socket 3, M key, type 2260/2280 SATA and PCIe x2/x4 SSD support) 2. 2 x SATA 6Gb/s connectors

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		SATA3 1 connector. The SATA3 1 becomes unavailable when a device is installed in the MSATA_MPCIE2 connector.	up to x1 mode.	3. Support for RAID 0 and RAID 1 Intel® Optane™ Memory Ready
USB	Integrated in the SoC: 1. 2 x USB 3.0/2.0 ports on the back panel 2. 2 x USB 2.0/1.1 ports available through the internal USB headers	Integrated in the SoC: 1. 2 x USB 3.0 ports on the back panel 2. 4 x USB 2.0/1.1 ports available through the internal USB headers	Integrated in the SoC: 1. 4 x USB 3.1 Gen 1 ports on the back panel 2. 4 x USB 2.0/1.1 ports available through the internal USB headers	Chipset: 1. 4 x USB 3.0 ports (2 ports on the back panel, 2 ports available through the internal USB header) 2. 4 x USB 2.0/1.1 ports (2 ports on the back panel, 2 ports available through the internal USB header)
Internal I/O Connectors	1. 1 x SATA 6Gb/s connector 2. 1 x SATA power connector 3. 1 x front panel header 4. 1 x flat panel display header 5. 1 x front panel audio header 6. 1 x USB 2.0/1.1 header 7. 1 x serial port header 8. 1 x serial port power select jumper (COM_PW) 9. 1 x LCDVCC/MON header (LCDVCC_MON) 10. 1 x LVDS header 11. 1 x GPIO header 12. 1 x SMBUS	1. 1 x DC-In power connector 2. 1 x system fan header 3. 2 x SATA 6Gb/s connectors 4. 2 x SATA power connectors 5. 1 x front panel header 6. 1 x battery cable header 7. 2 x USB 2.0/1.1 headers 8. 4 x serial port headers 9. 4 x serial port power select jumpers 10. 1 x speaker header 11. 1 x GPIO power selection jumper 12. 1 x GPIO status configuration jumper 13. 1 x LVDS header 14. 1 x LVDS drive voltage jumper 15. 1 x flat panel display header	1. 1 x 4-pin ATX 12V power connector 2. 1 x CPU fan header 3. 1 x system fan header 4. 2 x SATA 6Gb/s connectors 5. 1 x M.2 Socket 3 connector 6. 1 x SATA power connector 7. 1 x front panel header 8. 1 x front panel audio header 9. 1 x battery cable header 10. 2 x USB 2.0/1.1 headers 11. 6 x serial port headers 12. 6 x serial port power select jumpers 13. 1 x D-Sub header 14. 1 x LVDS header 15. 1 x LVDS drive voltage jumper (LCD_VCC)	1. 1 x 4-pin ATX 12V power connectors 2. 1 x AT/ATX mode switch jumper 3. 1 x CPU fan header 4. 1 x system fan headers 5. 1 x M.2 Socket 3 connector on the back of the motherboard 6. 2 x SATA 6Gb/s connectors 7. 1 x MSATA connector 8. 1 x USIM connector on the back of the motherboard 9. 1 x SATA power connector 10. 1 x front panel header 11. 1 x front panel audio header 12. 1 x battery power cable connector 13. 1 x USB 3.1 Gen 1 header 14. 1 x USB 2.0/1.1 header 15. 4 x serial port headers

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	13. 1 x Battery Cable header	16. 1 x flat panel display switch header 17. 1 x backlight switch header 18. 1 x volume control header 19. 1 x buzzer header 20. 1 x LPT/GPIO header 21. 1 x LPT configuration jumper 22. 1 x I2C 23. 1 x SMBUS 24. 1 x BIOS Select jumper 25. 1 x Clear CMOS jumper 26. 1 x chassis intrusion header	16. 1 x flat panel display header (FPD) 17. 1 x flat panel display power select jumper (FPD_PWR) 18. 1 x flat panel display switch header (MON_SW) 19. 1 x backlight switch header (BL_SW) 20. 1 x digital microphone header (DMIC_CON) 21. 1 x speaker header (SPKR) 22. 1 x buzzer header (SPEAKER) 23. 1 x chassis intrusion jumper 24. 1 x LPT/GPIO header (LPT_GPIO) 25. 1 x LPT configuration jumper (LPT_SEL) 26. 1 x GPIO power selection jumper (GPIO_PWRSEL) 27. 1 x GPIO status configuration jumper (GPIO_SET) 28. 1 x BIOS Select jumper (BIOS_SET) 29. 1 x Clear CMOS jumper 30. 1 x I2C 31. 1 x SMBUS	16. 4 x serial port power select jumpers 17. 1 x D-Sub port header 18. 1 x GPIO header 19. 1 x LVDS header 20. 1 x LVDS drive voltage jumper (LCD_VCC) 21. 1 x flat panel display header (FPD) 22. 1 x flat panel display power select jumper (FPD_PWR) 23. 1 x flat panel display switch header (MON_SW) 24. 1 x backlight switch header (BL_SW) 25. 1 x speaker header (SPKR) 26. 1 x buzzer header (SPEAKER) 27. 1 x Clear CMOS jumper 28. 1 x chassis intrusion header 29. 1 x I2C 30. 1 x SMBUS
Back Panel Connectors	1. 1 x DC In power jack 2. 1 x HDMI port 3. 2 x USB 3.0/2.0 ports 4. 1 x RJ-45 port	1. 1 x HDMI port 2. 1 x D-Sub port 3. 2 x USB 3.0 ports 4. 2 x RJ-45 ports	1. 1 x DC-In power connector 2. 1 x HDMI2.0 port 3. 1 x D-Sub port 4. 4 x USB 3.1 Gen 1 ports	1. 1 x DC-In power connector 2. 1 x HDMI port 3. 1 x DisplayPort 4. 2 x USB 3.0 port

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		5. 1 x audio jack (headphone and microphone combo jack)	5. 2 x RJ-45 ports 6. 2 x audio jacks (Line In, Mic In)	5. 2 x USB 2.0/1.1 ports 6. 2 x RJ-45 ports 7. 2 x audio jacks
Operating System	1. Support for Windows 10 64-bit	1. Support for Windows 10 64-bit	1. Support for Windows 10 64-bit	1. Support for Windows 10 64-bit 2. cFosSpeed
Form Factor	1. Pico-ITX Form Factor; 10.0cm x 7.2cm	1. SBC Form Factor; 14.6cm x 10.2cm	1. Thin Mini-ITX Form Factor; 17.0cm x 17.0cm	1. Thin Mini-ITX; 17.0cm x 17.0cm
Power consumption (Typical)	N3350, DDR3L 4G, SSD, 1.3A@+12V		N4100, DDR4 16G, SSD, 3A@12V	G4900T, DDR4 16G, SSD, 2A@12V 2A@12V for 35W Processor's TDP?!
DC Power Input	12V	9V ~ 36V	12V/19-24V	12/19-24V
Processor's TDP/SDP	Celeron N3350 TDP=6W, SDP=4W	Atom® x5-E3940 TDP=9.5W	N4100 TDP=6W, SDP=4.8W	I7-8700T TDP= 35W , TDPCnf=25W
Min. cost 08.2020 Russia	9700 RUB (run out from sale)	12000 RUB (marked as new line)	10000 RUB (marked as new line)	9000 + 22000 (I7-8700T) RUB

Processors for 12V power Pico-ITX & Thin Mini-ITX Motherboards

	<u>Intel® Celeron® Processor N3350</u>	<u>Intel Atom® x5-E3940 Processor</u>	<u>Intel® Celeron® Processor N4100</u>	<u>Intel® Core™ i7-8700T Processor</u>
Essentials				
Product Collection	Intel® Celeron® Processor N Series	Intel Atom® Processor X Series	Intel® Celeron® Processor N Series	8th Generation Intel® Core™ i7 Processors
Vertical Segment	Mobile	Embedded	Mobile	Desktop
Processor Number	N3350	E3940	N4100	i7-8700T
Status	Launched	Launched	Launched	Launched
Launch Date	Q3'16	Q4'16	Q4'17	Q2'18
Lithography	14 nm	14 nm	14 nm	14 nm
Use Conditions	PC/Client/Tablet	Industrial Extended Temp, Embedded Broad Market Extended Temp		Embedded Broad Market Commercial Temp, PC/Client/Tablet
Recommended Customer Price	\$107.00	\$34.00		\$303.00
Performance Specifications				
# of Cores	2	4	4	6
# of Threads	2	4	4	12
Processor Base Frequency	1.10 GHz	1.60 GHz	1.10 GHz	2.40 GHz
Burst Frequency	2.40 GHz	1.80 GHz	2.40 GHz	
Cache	2 MB L2 Cache	2 MB L2 Cache	4 MB	12 MB Intel® Smart Cache
TDP	6 W	9.5 W	6 W	35 W
Scenario Design Power (SDP)	4 W		4.8 W	
Max Turbo Frequency				4.00 GHz
Bus Speed				8 GT/s
Intel® Turbo Boost Technology 2.0 Frequency‡				4.00 GHz
Configurable TDP-down Frequency				1.90 GHz
Configurable TDP-down				25 W

	Intel® Celeron® Processor N3350	Intel Atom® x5-E3940 Processor	Intel® Celeron® Processor N4100	Intel® Core™ i7-8700T Processor
Supplemental Information				
Embedded Options Available	Yes	Yes	No	Yes
Product Brief			+	
Datasheet	+	+		+
Additional Information URL		+		
Memory Specifications				
Max Memory Size (dependent on memory type)	8 GB	8 GB	8 GB	128 GB
Memory Types	DDR3L/LPDDR3 up to 1866 MT/s; LPDDR4 up to 2400 MT/s	DDR3L (ECC and Non ECC) up to 1866 MT/s; LPDDR4 up to 2133 MT/s	DDR4/LPDDR4 up to 2400MT/s	DDR4-2666
Max # of Memory Channels	2	4	2 GA-IMB4100TN=16Gb	2
ECC Memory Supported ‡	No	Yes	No	No
Max Memory Bandwidth		34.1 GB/s		41.6 GB/s
Physical Address Extensions		40-bit		
Processor Graphics				
Processor Graphics ‡	Intel® HD Graphics 500	Intel® HD Graphics 500	Intel® UHD Graphics 600	Intel® UHD Graphics 630
Graphics Base Frequency	200 MHz	400 MHz	200 MHz	350 MHz
Graphics Burst Frequency	650 MHz	600 MHz	700 MHz	
Graphics Video Max Memory	8 GB	2 GB	8 GB	64 GB
Graphics Output	eDP/DP/HDMI/MIPI-DSI	eDP/DP/HDMI/MIPI-DSI	eDP/DP/HDMI/MIPI-DSI	eDP/DP/HDMI/DVI
Execution Units	12	12	12	
4K Support		Yes, at 60Hz	Yes, at 60Hz	Yes, at 60Hz
DirectX* Support	Yes	Yes	12	12
OpenGL* Support	Yes	Yes	4.4	4.5
Intel® Quick Sync Video	Yes	Yes	Yes	Yes

	<u>Intel® Celeron® Processor N3350</u>	<u>Intel Atom® x5-E3940 Processor</u>	<u>Intel® Celeron® Processor N4100</u>	<u>Intel® Core™ i7-8700T Processor</u>
# of Displays Supported ‡	3	3	3	3
Device ID	0x5A85	0x5A85	0x3185	0x3E92
Graphics Max Dynamic Frequency				1.20 GHz
Max Resolution (HDMI 1.4)‡		3840x2160 @30Hz		4096x2304@24Hz
Max Resolution (DP)‡		4096x2160 @60Hz		4096x2304@60Hz
Max Resolution (eDP - Integrated Flat Panel)‡		3840x2160 @ 60Hz		4096x2304@60Hz
Intel® InTru™ 3D Technology	No	No		Yes
Intel® Clear Video HD Technology	Yes	Yes		Yes
Intel® Clear Video Technology	Yes	Yes		Yes
Expansion Options				
PCI Express Revision	2	2	2	3
PCI Express Configurations ‡	1x4 + 1x2 or 4x1 or 2x1+1x2 + 1x2	x4,x2,x1	1x4 + 1x2 or 4x1 or 2x1+1x2 + 1x2	Up to 1x16, 2x8, 1x8+2x4
Max # of PCI Express Lanes	6	6	6	16
Scalability				1S Only
I/O Specifications				
# of USB Ports	8	8	8	
USB Revision	2.0/3.0	2.0/3.0	2.0/3.0	
Total # of SATA Ports	2	2	2	
Integrated LAN	No	No	No	
Integrated Wireless‡			Intel® Wireless-AC MAC	
General Purpose IO	Yes	Yes	Yes	
UART	Yes	Yes	Yes	
Max # of SATA 6.0 Gb/s Ports	2	2	2	
Package Specifications				
Sockets Supported	FCBGA1296	FCBGA1296	FCBGA1090	FCLGA1151
Max CPU Configuration	1	1	1	1

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Thermal Solution Specification			105 deg C	PCG 2015A (35W)
TJUNCTION	105°C	110°C	105 deg C	100°C
Package Size	24mm x 31mm	24mm x 31mm	25mm x 24mm	37.5mm x 37.5mm
TCASE		100°C		
Operating Temperature Range		-40°C to 85°C		
Operating Temperature (Maximum)		85 °C		
Operating Temperature (Minimum)		-40 °C		
Advanced Technologies				
Intel® Optane™ Memory Supported ‡			No	Yes
Intel® Speed Shift Technology			No	
Intel® Turbo Boost Max Technology 3.0 ‡			No	
Intel® Turbo Boost Technology ‡	No	No	No	2
Intel vPro® Platform Eligibility ‡	No	No	No	Yes
Intel® Hyper-Threading Technology ‡	No	No	No	Yes
Intel® Virtualization Technology (VT-x) ‡	Yes	Yes	Yes	Yes
Intel® Virtualization Technology for Directed I/O (VT-d) ‡	Yes	Yes	Yes	Yes
Intel® VT-x with Extended Page Tables (EPT) ‡	Yes	Yes	Yes	Yes
Intel® 64 ‡	Yes	Yes	Yes	Yes
Instruction Set	64-bit	64-bit	64-bit	64-bit
Instruction Set Extensions			Intel® SSE4.2	Intel® SSE4.1, Intel® SSE4.2, Intel® AVX2
Idle States	Yes	Yes	Yes	Yes
Enhanced Intel SpeedStep® Technology	Yes	Yes	Yes	Yes
Thermal Monitoring Technologies	Yes	Yes	Yes	Yes
Intel® Identity Protection Technology ‡	Yes	Yes	Yes	Yes
Intel® Smart Response Technology	No	No	No	

	<u>Intel® Celeron® Processor N3350</u>	<u>Intel Atom® x5-E3940 Processor</u>	<u>Intel® Celeron® Processor N4100</u>	<u>Intel® Core™ i7-8700T Processor</u>
Intel® TSX-NI				Yes
Intel® Stable Image Platform Program (SIPP)	No	No		Yes
Secure Boot	Yes	Yes		
Intel® HD Audio Technology	Yes	Yes		
Intel® Rapid Storage Technology	No	No		
Intel® Smart Connect Technology	No	No		
Intel® Virtualization Technology for Itanium (VT-i)	No	No		
Security & Reliability				
Intel® AES New Instructions	Yes	Yes	Yes	Yes
Secure Key	Yes	Yes	Yes	Yes
Intel® Software Guard Extensions (Intel® SGX)			Yes with Intel® ME	Yes with Intel® ME
Intel® Memory Protection Extensions (Intel® MPX)	Yes		Yes	Yes
Execute Disable Bit ‡	Yes	Yes	Yes	Yes
Anti-Theft Technology	No	No	No	
Intel® OS Guard	Yes	No	Yes	Yes
Intel® Trusted Execution Technology ‡	No	No		Yes
Intel® Boot Guard				Yes

**Intel Atom E3940 @ 1.60GHz vs Intel Celeron N4100 @ 1.10GHz vs Intel Core i7-8700T @ 2.40GHz
Benchmarks**

	<u>Intel Celeron N3350 @ 1.10GHz</u>	<u>Intel Atom E3940 @ 1.60GHz</u>	<u>Intel Celeron N4100 @ 1.10GHz</u>	<u>Intel Core i7-8700T @ 2.40GHz</u>
Price	<u>\$232.89</u>		<u>\$107</u>	<u>\$429.98</u>
Socket Type	FCBGA1296	NA ²	FCBGA1090	FCLGA1151-2
CPU Class	Laptop	Laptop	Laptop	Desktop
Clockspped	1.1 GHz	1.6 GHz	1.1 GHz	2.4 GHz
Turbo Speed	Up to 2.4 GHz	Up to 1.8 GHz	Up to 2.4 GHz	Up to 4.0 GHz
# of Physical Cores	2 (Threads: 2)	4 (Threads: 4)	4 (Threads: 4)	6 (Threads: 12)
Max TDP	6W	9.5W	6W	35W
<u>Yearly Running Cost</u>	\$1.10	\$1.73	\$1.10	\$6.39
First Seen on Chart	Q4 2016	Q2 2018	Q2 2018	Q1 2018
# of Samples	478	6	193	194
Cross-Platform Rating	1913	3149	4257	20765
Single Thread Rating	801	681	1004	2394
CPU Mark	1133	1940	2497	10718

Qinsy system requirements & Computer with GA-IMB370TN motherboard (Thin Mini-ITX)

Qinsy system requirements (https://confluence.gps.nl/qinsy/9.1/en/qinsy-installation-192841152.html)	GA-IMB370TN (rev. 1.0) & Intel® Core™ i7-8700T Processor
Operating system: Microsoft Windows 10 (64 bit)	Microsoft Windows 10 (64 bit)
Processor: Intel Core i7 2.6Ghz+	Intel Core i7-8700T 2.4GHz (Boost to 4GHz) with FAN Advantech 1960052651N021
Memory (RAM): Minimum 4 GB for data acquisition computer. Minimum 8 GB for data processing computer.	16 GB (2 x DDR4 SO-DIMM) Corsair Value Select SO-DIMM DDR4 DIMM 8 Gb PC4-17000 (DDR4 2133 MHz) (CMSO16GX4M2A2133C15)
Storage: Minimum of 9 GB of free space on the system drive. If you opt to install Qinsy on another drive, you will still need 7 GB of free space on the system drive, this is because Geodetics, ENCs, etc. are still installed on the C drive.	480G (SSD mSATA) Kingston UV500 480 Gb SUV500MS / 480G mSATA Can be installed SSD 512 Gb SATA 6Gb/s Intel DC S3110 Series <SSDSC2KI512G801> 2.5" 3D TLC
Video card: NVIDIA with 500 MB of VRAM or higher. OpenGL and DirectX compatible.	Onboard Graphics (Integrated Graphics Processor- Intel®HD Graphics); shared memory max. 1 GB Can be installed Palit GeForce GT 1030 1227MHz PCI-E 3.0 2048Mb 6000MHz 64 bit DVI HDMI HDCP Low Profile (PCI-E 4x 3.0, TDP 30W)
Autonomous survey platform (no displays): Basic graphics card sufficient Suggestion: think about power consumption of the PC	Processor's power consumption 35W DC Power Input: 12/19-24V
	<ul style="list-style-type: none"> ○ Intel Dual Band Wireless-AC 7265 ○ STLab U-400 (RTL) USB2.0 --> 4xCOM9M ○ HDMI Greenconnect GCR-51576-2m ○ Vention VAS-A16-B200 (USB 2.0 A -> B 2m) ○ Jack 3.5 Jet.A JA-AC01 2m ○ Viewsonic TD1630-3 ○ KS-is Maxt KS-154 150W ○ Intel I350-T4 (5W) PCI-E x4 RJ45

Qinsky system requirements & Computer with GA-IMB4100TN motherboard (Thin Mini-ITX)

Qinsky system requirements (https://confluence.gps.nl/qinsky/9.1/en/qinsky-installation-192841152.html)	GA-IMB4100TN (rev. 1.0)
Operating system: Microsoft Windows 10 (64 bit)	Microsoft Windows 10 (64 bit)
Processor: Intel Core i7 2.6Ghz+	Built in Quad-Core Celeron® N4100 SoC (2.4 GHz) with FAN Noctua NF-A8 NF-A8 PWM
Memory (RAM): Minimum 4 GB for data acquisition computer. Minimum 8 GB for data processing computer.	16 GB (2 x DDR4 SO-DIMM) Corsair Value Select SO-DIMM DDR4 DIMM 8 Gb PC4-17000 (DDR4 2133 MHz) (CMSO16GX4M2A2133C15)
Storage: Minimum of 9 GB of free space on the system drive. If you opt to install Qinsky on another drive, you will still need 7 GB of free space on the system drive, this is because Geodetics, ENCs, etc. are still installed on the C drive.	480G (SSD mSATA) Kingston UV500 480 Gb SUV500MS / 480G mSATA Can be installed SSD 512 Gb SATA 6Gb/s Intel DC S3110 Series <SSDSC2KI512G801> 2.5" 3D TLC
Video card: NVIDIA with 500 MB of VRAM or higher. OpenGL and DirectX compatible.	Onboard Graphics (Integrated Graphics Processor-Intel®HD Graphics); shared memory max. 512 MB
Autonomous survey platform (no displays): Basic graphics card sufficient Suggestion: think about power consumption of the PC	Processor's power consumption 6W DC Power Input: 12/19-24V
	<ul style="list-style-type: none"> ○ Intel Dual Band Wireless-AC 7265 ○ STLab U-400 (RTL) USB2.0 --> 4xCOM9M ○ HDMI Greenconnect GCR-51576-2m ○ Vention VAS-A16-B200 (USB 2.0 A -> B 2m) ○ Jack 3.5 Jet.A JA-AC01 2m ○ Viewsonic TD1630-3 ○ KS-is Maxt KS-154 150W ○ Intel I350-T4 (5W) PCI-E x4 RJ45

