POCm-W22C-ULT3
POCm-W24C-ULT3

Mobile Point-of-Care Medical Panel PC

22" / 24" Medical Panel PC with three hot-swappable batteries that can provide a total runtime of more than 8 hours is ideal for non-powered medical carts
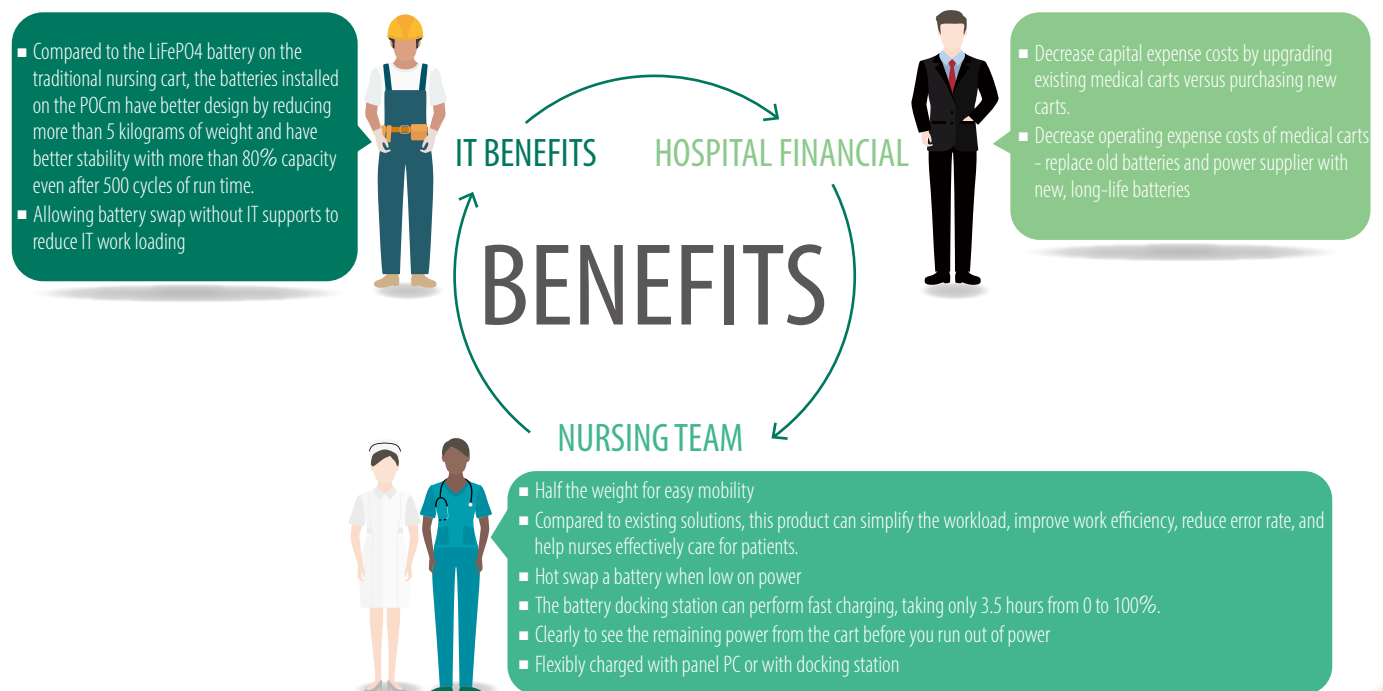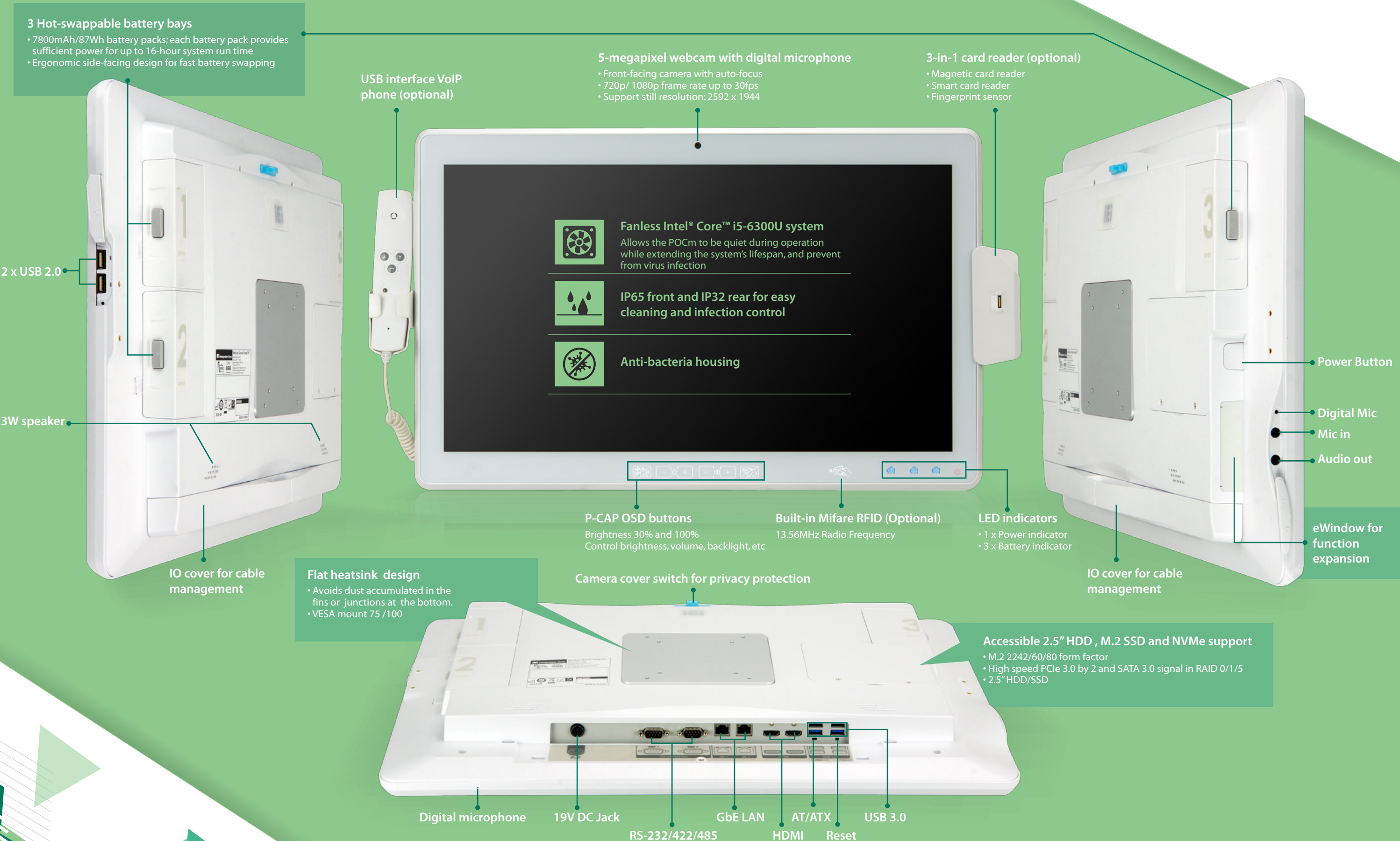
IEI POCm Series

Medication carts for healthcare facilities need a better energy storage solution to power their equipment, but most of current battery solutions do not have the capacity to complete each shift, are slow to recharge, add considerable weight to the carts, and need annual replacement. IEI's latest mobile POC series, the POCm, allows for easier movement of medical carts as well as providing longer run time for the non-powered medical cart use.

- 22" and 24" medical grade FHD fanless panel PC
- Intel® Celeron®, Core™ i5/i7 Skylake ULT SoC processor
- Three hot-swappable batteries with a total runtime of 8~16 hours is ideal for non-powered medical carts
- The battery docking station can perform fast charging, taking only 3 hours from 0 to 100%
- PCAP touch allows 10-point multi-touch, multi-layer gloves and water-on-screen operation
- Anti-bacteria housing with IP65 front bezel and IP32 rear protection
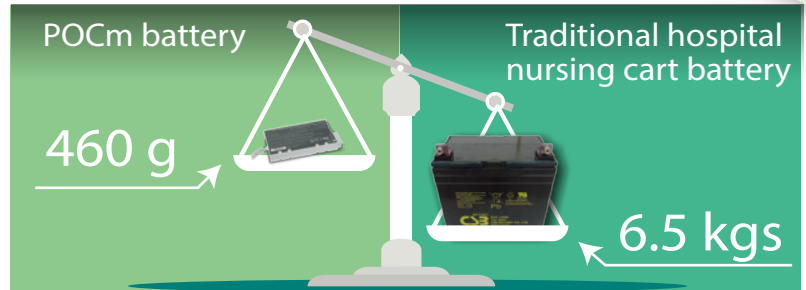- Optional integrated RFID, 3-in-1 card reader, external 1D/2D barcode reader and USB phone

BENEFITS

IT BENEFITS
- Compared to the LiFePO4 battery on the traditional nursing cart, the batteries installed on the POCm have better design by reducing more than 5 kilograms of weight and have better stability with more than 80% capacity even after 500 cycles of run time.
- Allowing battery swap without IT supports to reduce IT work loading

HOSPITAL FINANCIAL
- Decrease capital expense costs by upgrading existing medical carts versus purchasing new carts.
- Decrease operating expense costs of medical carts – replace old batteries and power supplier with new, long-life batteries

NURSING TEAM
- Half the weight for easy mobility
- Compared to existing solutions, this product can simplify the workload, improve work efficiency, reduce error rate, and help nurses effectively care for patients.
- Hot swap a battery when low on power
- The battery docking station can perform fast charging, taking only 3.5 hours from 0 to 100%.
- Clearly to see the remaining power from the cart before you run out of power
- Flexibly charged with panel PC or with docking station

Mobile Point-of-Care Medical Panel PC

3 Hot-swappable battery bays
- 7800mAh/87Wh battery packs; each battery pack provides sufficient power for up to 16-hour system run time
- Ergonomic side-facing design for fast battery swapping

USB interface VoIP phone (optional)

5-megapixel webcam with digital microphone
- Front-facing camera with auto-focus
- 720p/ 1080p frame rate up to 30fps
- Support still resolution: 2592 x 1944

3-in-1 card reader (optional)
- Magnetic card reader
- Smart card reader
- Fingerprint sensor

2 x USB 2.0

Fanless Intel® Core™ i5-6300U system
Allows the POCm to be quiet during operation while extending the system's lifespan, and prevent from virus infection

IP65 front and IP32 rear for easy cleaning and infection control

Anti-bacteria housing

Power Button

3W speaker

Digital Mic

Mic in

Audio out

IO cover for cable management

P-CAP OSD buttons
Brightness 30% and 100%
Control brightness, volume, backlight, etc

Built-in Mifare RFID (Optional)
13.56MHz Radio Frequency

LED indicators
- 1 x Power indicator
- 3 x Battery indicator

IO cover for cable management

eWindow for function expansion

Flat heatsink design
- Avoids dust accumulated in the fins or junctions at the bottom.
- VESA mount 75 /100

Camera cover switch for privacy protection

Accessible 2.5" HDD , M.2 SSD and NVMe support
- M.2 2242/60/80 form factor
- High speed PCIe 3.0 by 2 and SATA 3.0 signal in RAID 0/1/5
- 2.5" HDD/SSD

Digital microphone

19V DC Jack

RS-232/422/485

GbE LAN

HDMI

AT/ATX

Reset

USB 3.0

Hardware Features

20% Weight Off Makes the Cart Lighter

Each battery pack used in the POCm only weights 460 grams, which is much lighter than traditional hospital nursing cart battery (LiFePO4/ 6.5 Kg).

POCm battery pack: 460g

POCm-W22/24C-ULT3

Battery module: 6.5 kg

POCm battery

460 g

Traditional hospital nursing cart battery

6.5 kgs

Medical Cart Battery	New Way	Traditional Way
Battery Type	IEI Battery Pack	Battery Module
Battery Weight	0.46 kg/pack	6.5 kg
Battery Dimension (LxWxH mm)	148.7 x 89 x 19.7	181 X 170 x 77
Battery Power Accuracy	2 mA	20 mA
Battery Capacity	23.4Ah	20Ah
Decay Rate (Capacity Stability)	80~ 90% after 500 cycles	60% after 500 cycles
External Wire	No	Yes
Replacement Time	5 seconds	3 minutes

6th Generation Intel® Mobile ULT Processor

The POCm series integrated with Intel® Skylake-ULT i5-6300U processor offers dramatically higher CPU and graphics performance running at 15W thermal design power (TDP). With low power consumption design, the fanless system runs longer on battery, ideal for mobile medical care applications.

2012	2013	2014	2015
Ivy Bridge Intel® HD 4000-2500	Haswell Intel® HD 5200-4200	Broadwell Intel® HD 6200-5500	Skylake Intel® HD 530
3rd Generation Intel® Core Processor	4th Generation Intel® Core Processor	5th Generation Intel® Core Processor	6th Generation Intel® Core Processor
22nm		14nm	14nm
DirectX 11.0	DirectX 11.1 DX Extensions	DirectX 11.2	DirectX 12.0
Up to 16EUs	Up to 40 Eus EDRAM Iris Pro, Iris	Up to 48 Eus EDRAM Iris Pro, Iris	Up to 72 Eus EDRAM+ Iris Pro, Iris
256 GFLOPS	640 GFLOPS	768 GFLOPS	1152 GFLOPS

HDMI 1
HDMI 2
4 x USB 3.
USB 2.0
USB Hub IC
USB 2.0
USB 2.0
SATA 0, 6Gb/s
2 x SATA 3.0
1x PCI-E 3.0
1x USB 2.0
1x PCI-E 3.0
Mini-PCIe
1x USB 2.0

Intel® Core™ i5-6300U

2 x DDR4 2133/1866
1x PCI-E
Intel® I219
1x PCI-E
Intel® I211
I2C   GPIO
MCU
HD Audio   Audio IC
LPC   Super IO
TPM
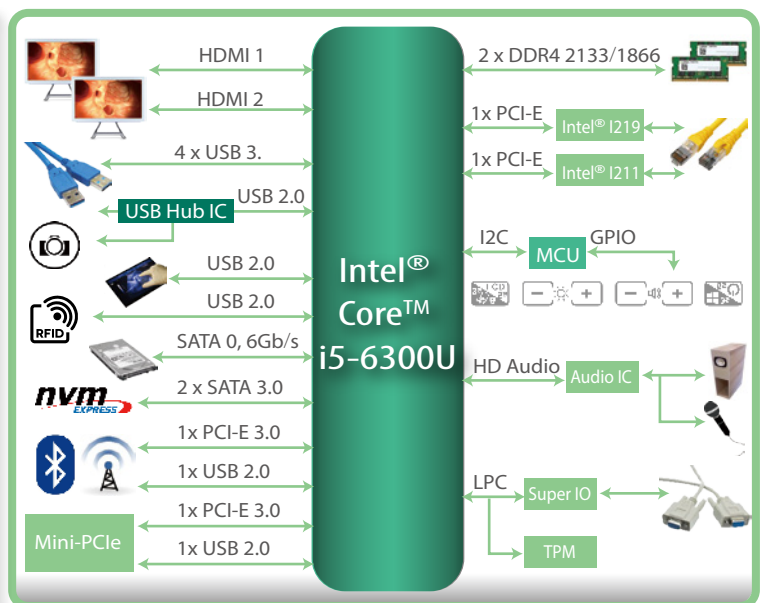
Three Hot-swappable Batteries

IEI's POCm series with three hot-swappable, rechargeable lithium-ion batteries provides non-stop operation service for nursing cares

- Long lasting battery (7800mAh/87Wh each battery pack) provide sufficient power for running 8~16 hours
- The user can change the low power hot-swappable battery anytime without work interruption and avoid water and dust dropping
- Ergonomic side-facing design ease the use for nurses with different height and avoid dust and water accumulation
- The fool-proof battery slot with clean indication can avoid wrong operations.

6-Slot Battery Charging Station

The 6-slot battery charging station built-in with an optimized charging module provides fast charging capability. Six batteries can be fully charged within 3.5 hours delivering greater convenience for the daily charging task.

- Side slide-in design prevents the station from dust and water accumulation
- Sleek outlook design with 15V/280W AC power adapter.
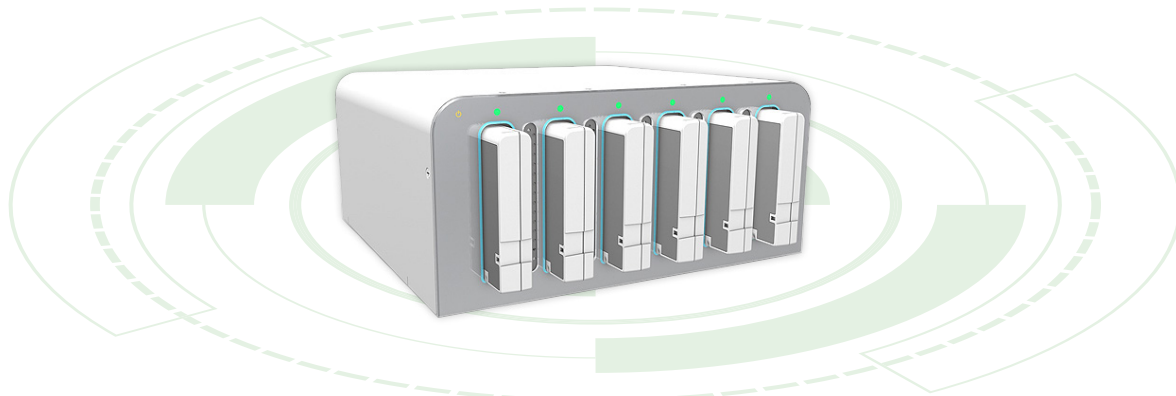
IRM Utility (IEI Real-time Monitoring)

The workload of the IT departments in digital hospitals is increased, owing to the prevalence of IT device deployment.

The built-in IRM (IEI Real-time Monitoring) software not only helps the terminal users check the status of batteries but also allows the IT technicians to monitor the whole system at a remote site. This design greatly enhances the working efficiency of our users and reduces time wasting in daily system inspection job.
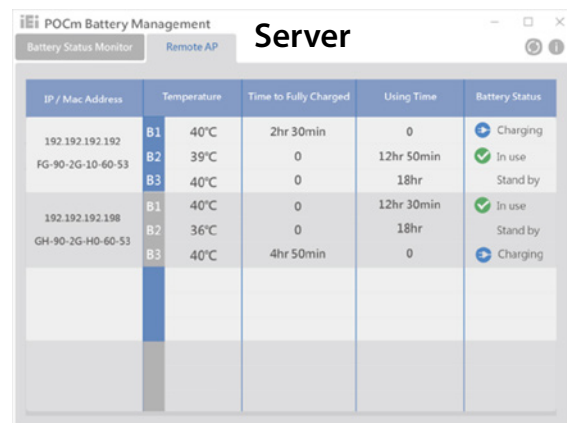
Client Mode	Server Mode (Central Management)
● Battery Capacity	● Battery Remote Monitoring
● Battery Temperature	● IP/ Mac Address Management
● Time to Fully Charged	
● Battery Remaining Time	
● Status: Charging/ In use/ Stand by	
● Low Power Alert (<10%)	
● Hibernate (<3%), to avoid shutting down data loss	

IT Center

Multi-touch Screen for Medical Use

IEI's POCm series integrated with seamless PCAP glass touch screen is extremely easy to clean and very resistant to scratches and chemicals.

- 10-point PCAP touch enabling smooth operation and easily customized to 1-point or 2-point touch by firmware adjustment.
- 6H surface scratch resistance
- Gloved touch support in standard firmware allows operation with multiple layers of surgical gloves
- Advanced water handling prevents false touch phenomena caused by fluids and gels on the touch surface

Anti-Normal Saline and Blood
(containing 9.0 g of salt per liter (0.90%)

5-layer medical glove

Anti-bacteria Housing

The shell of the POCm series contains antibacterial silver ion to effectively inhibit the propagation of bacteria. And the test was executed in accordance with JIS Z 2801"Anti-microbial products test for anti-microbial activity and efficacy".

Bacteria Types:
- Staphylococcus aureus
- Escherichia coli
- Pseudomonas aeruginosa
- Klebsiella pneumoniae
- MRSA

Antimicrobial Mechanism of IONPURE

With the presence of moisture, IONPURE releases a few Ag ions gradually. As microbes charged with minus on their surface, Ag ions that have plus are drawn toward microbes, and disturb their electric balance. And just then microbes are burst their cell wall and extinguished.

OSD Buttons / Battery Status LED

Battery Status LED

- 3 x Battery Indicator (Color : Blue/Orange)
- Blue: Battery capacity is above 25% (non-AC mode); Or, Battery is fully charged (AC mode)
- Orange: Battery capacity is 25%-10%
- Blinking Orange: Battery capacity is less than 10%

Battery 1   Battery 2   Battery 3   Power
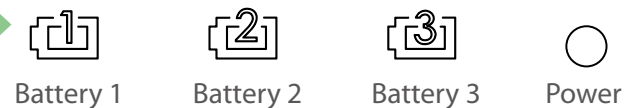
P-CAP OSD Buttons

The front capacitive OSD buttons provide fast settings for system, allowing to quick boot/shut down the system and adjust the brightness and volume of the system.

Button	Function	Button	Function
	Task Manager: Hold down key for 3 seconds Power on/off: Hold down key for 5s		- : Volume down +: Volume up
	- : Brightness down or lock/unlock OSD (with function key) (minimum brightness: 5%) +: Brightness up (maximum brightness: 100%)		Touch lock: Hold down key for 3 seconds LCD on/off: Hold down key for 5 seconds

5-megapixel Webcam with Digital Microphone

The 5-megapixel webcam has a privacy cover that can be opened and closed easily

- 5-megapixel CMOS front-facing camera with auto-focus
- Support snapshot and still image capture
- Support for auto focus control (AFC)
- Support 720p/ 1080p frame rate up to 30fps
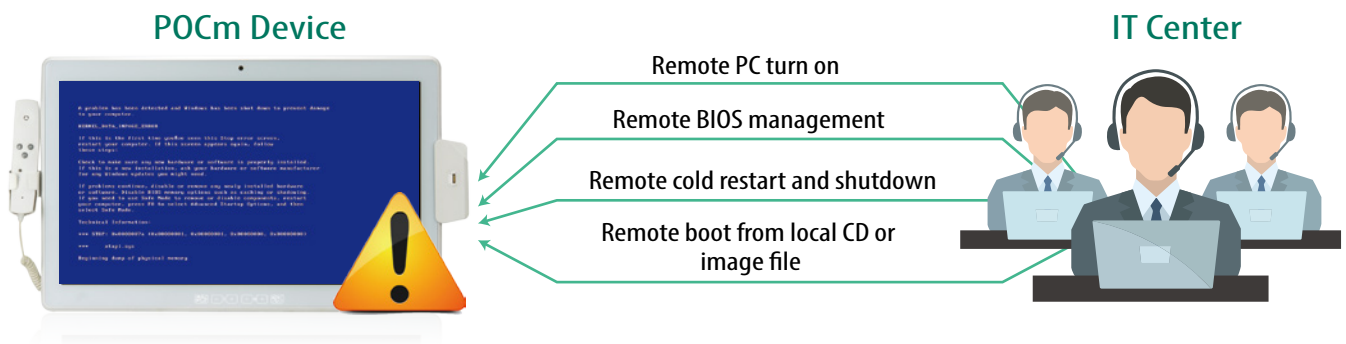- Support for still image resolution: 2592(H) x 1944(V)

OPEN

CLOSE
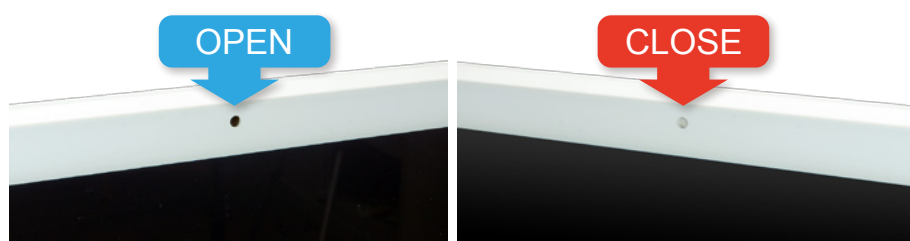
0ºC ~ 40ºC Fanless Design

Instead of a fan, the POCm features a remarkable thermal design that intelligently dissipates heat, allowing us to create a sleek, modern design without the bulk of conventional medical systems. This innovative thermal design helps keep the POCm running smoothly even under the heaviest loads.
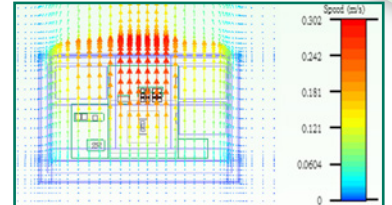
Intel® Active Management Technology Facilitates Remote Management

POCm supports Intel Active Management Technology providing a hardware-assisted manageability capabilities to simplify maintenance and management of nursing cart panel computers.

POCm Device

IT Center

Remote PC turn on

Remote BIOS management

Remote cold restart and shutdown

Remote boot from local CD or image file

Intel® Core™ i5-6300U processor with vPro™

LAN1 by on-board Intel® I219 Ethernet Controller with Intel® AMT-enabled chipset

Dual NVMe SSD

IEI's POCm series provides flexible storage device options, including two M.2 2242/2260/2280 slots, two slots for NVMe PCIe 3.0 x2 and SATA 3.0 in RAID 0/1/5 data security.

Intel® Core™ i5-6300U

PCIe 3.0 x2 / SATA (6Gb/s)	NGFF B+M key 2242/60/80
PCIe 3.0 x2 / SATA (6Gb/s)	NGFF B+M key 2242/60/80
SATA (6Gb/s)	2.5" SSD/HDD Bay
SATA (6Gb/s)	mSATA Slot

W 30 mm — mSATA — H 50.9 mm
W 69.85 mm — 2.5" SSD — H 100.1 mm
W 22 mm — M.2 2280 — H 80 mm

Interface
- M.2 SATA 6Gb/s
- M.2 PCIe 2.0 x2
- M.2 PCIe 3.0 x2

Transfer Rate
- Mainstream 6Gb/s
- 10Gb/s
- 16Gb/s
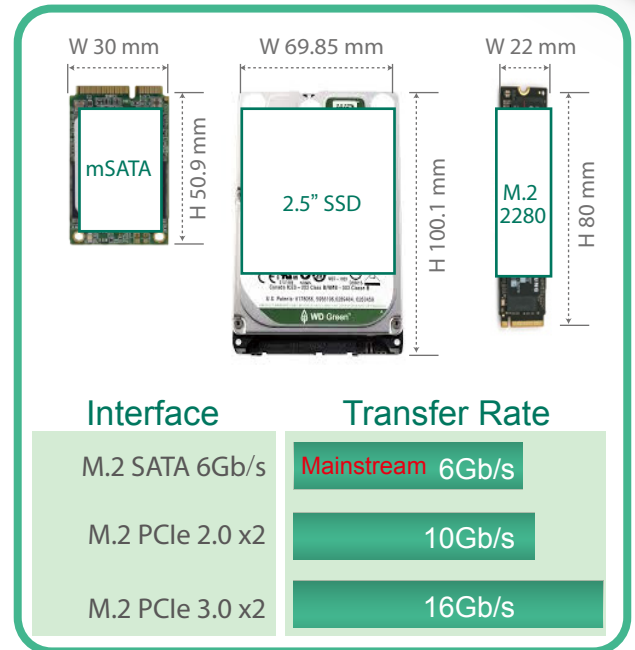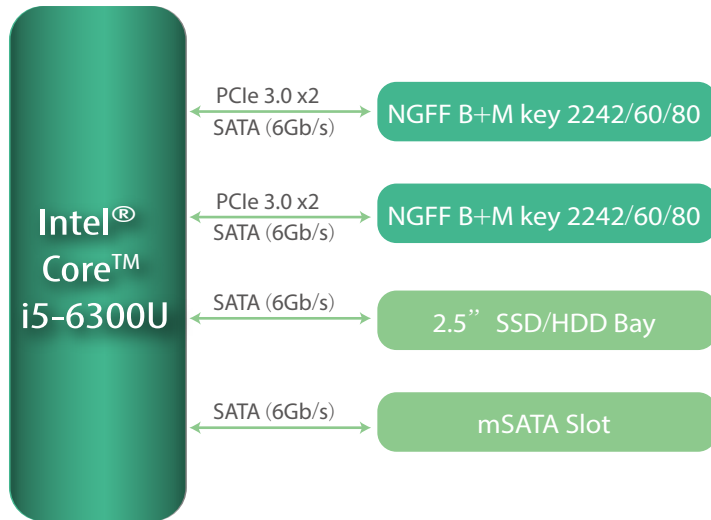
The dual M.2 SATA storage device could not only enlarge the capacity but also prevent the risks of data loss with RAID0/1/5 data security.

What type of RAID do I want?

● RAID 0 (Striping) -The highest performing level

● RAID 1 (Mirroring) -Data safety

● RAID 5 (Distributed Parity)-offers both data safety and performance

Features	RAID 0	RAID 1	RAID 5
Minimum # Drives	2	2	3
Data Protection	No	Single-drive failure	Single-drive failure
Capacity Utilization	100%	50%	67%-94%
Typical Application	High end workstations, data logging, real-time rendering, very transitory data	Operating system, Transaction database	Data warehousing, web serving, archiving

Accessible Storage Device

2.5" SSD/HDD

Dual 2242, 2260 and 2280 NGFF SSD

✔ M.2 2242 SSD

✔ M.2 2260 SSD

✔ M.2 2280 SSD
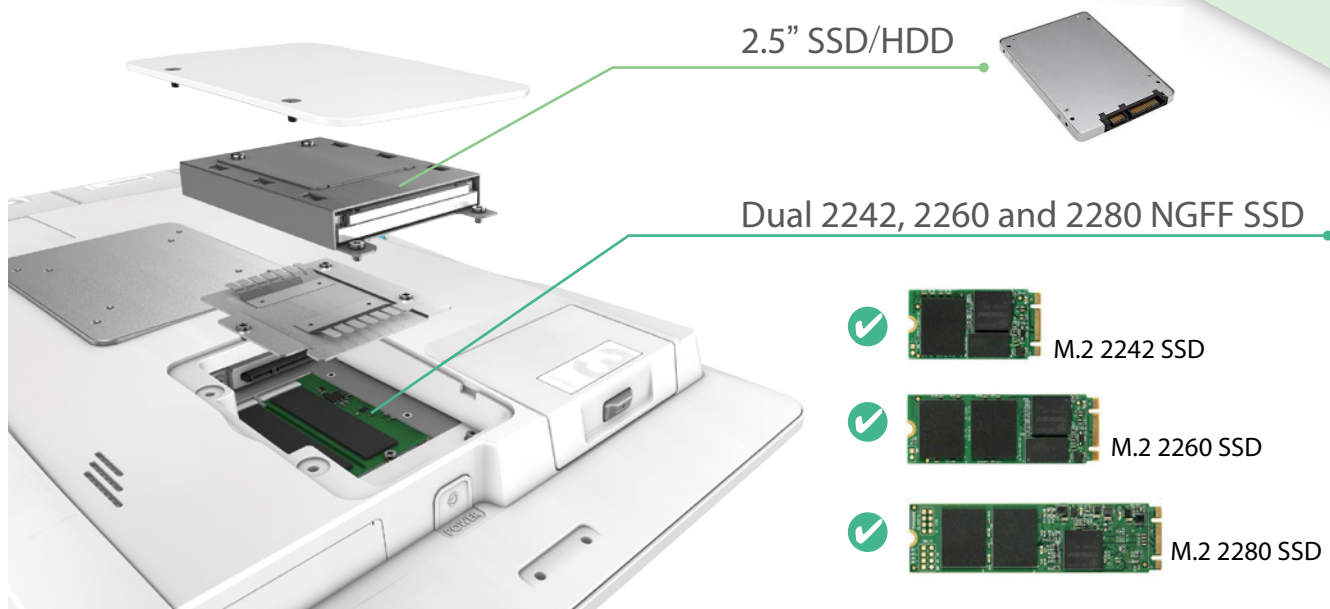
TPM Trusted Platform Module

Information security is always a major concern for IT devices. The POCm series adopts the latest TPM 2.0 protocol to enhance data security. Computer programs can use a TPM to authenticate hardware devices, since each TPM chip has a unique and secret RSA key burned in as it is produced. Pushing the security down to the hardware level provides more protection than a software-only solution.

Trusted Platform Module provides

- A random number generator: Facilities for the secure generation of cryptographic keys for limited uses.
- Remote attestation: Creates a nearly unforgeable hash key summary of the hardware and software configuration. The software in charge of hashing the configuration data determines the extent of the summary. This allows a third party to verify that the software has not been changed.
- Binding: Encrypts data using the TPM bind key, a unique RSA key descended from a storage key
- Sealing: Similar to binding, but in addition, specifies the TPM state for the data to be decrypted (unsealed).
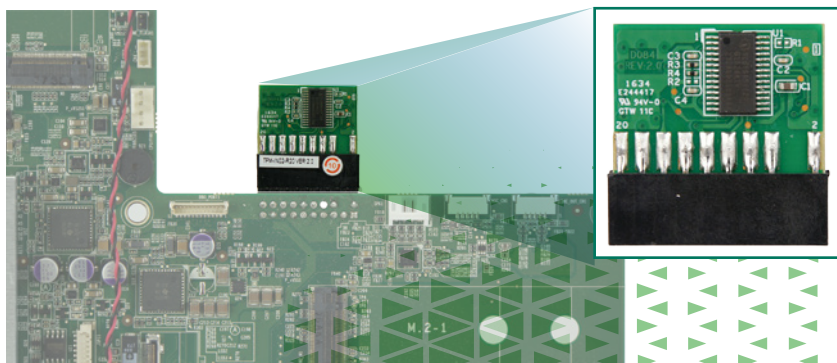
TPM on-board design prevents from the electromagnetic interference issue caused by cable connecting.
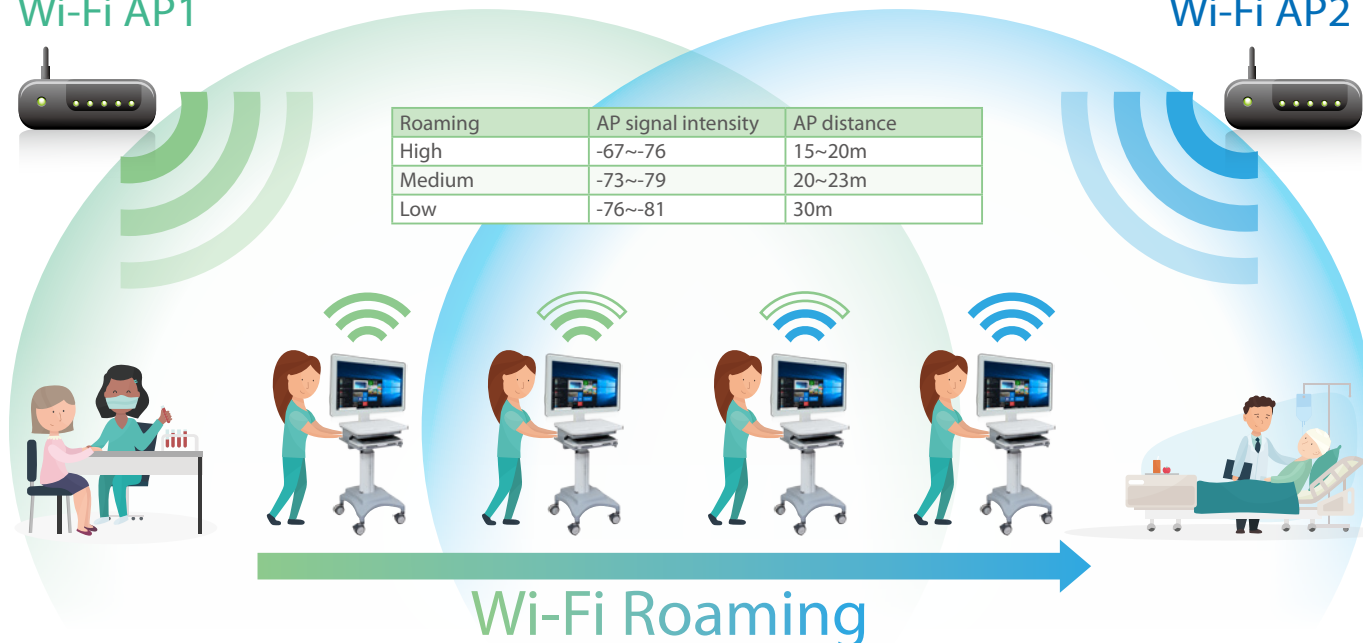
Wireless 802.11ac and Bluetooth 4.2

POCm adopts 4th generation Intel 802.11ac Dual Band Wireless-AC 8265 module and supports Bluetooth 4.2. The IT technicians in hospital have a preference of Intel® Wi-Fi module due to its connectivity and compatibility. Roaming adjustment ensures a stable and smooth internet availability in different kind of Wi-Fi environment.

Wi-Fi AP1   Wi-Fi AP2

Roaming	AP signal intensity	AP distance
High	-67~-76	15~20m
Medium	-73~-79	20~23m
Low	-76~-81	30m

Wi-Fi Roaming

E-Window

E-Window is a reserved expansion slot for adding flexible functionality to our panel PC. By using the PCIe Mini interface, system integrators can easily add additional I/O to meet different demands of various medical scenario without any other costly efforts. For example, add two isolated COM ports for connecting to medical devices.

Specifications

	Model	POCm-W22C-ULT3	POCm-W24C-ULT3
LCD Specifications	LCD Display	21.5" (16:9)	23.8"
	Max Resolution	1920 (W) x 1080 (H)	1920 (W) x 1080 (H)
	Brightness (cd/m²)	250	250
	Contrast Ratio	1000:1	1000:1
	LCD Color	16.7M colors (RGB 6-bit)	16.7M colors (RGB 6-bit)
	Pixel Pitch (mm)	0.24825 (H) x 0.24825 (V)	0.2745 (H) x 0.2745 (V)
	Viewing Angle (H-V)	170°/160°	178°(H) / 178°(V)
	Backlight MTBF (hrs)	30000 (LED backlight)	30000 (LED backlight)
Touch	Touchscreen	Projected capacitive type with 10-point multi-touch	
	Surface Hardness	6H	
System	CPU Support	6th Generation Intel® mobile ULT Core™ i7-6600U / Core™ i5-6300U and /Celeron® 3855U	
	RAM	1 x 4GB, 260-pin 2133/1866 MHz dual-channel DDR4 non-ECC unbuffered SO-DIMMs (system max. 32GB)	
	LAN Controller	1 x Intel® I219 Ethernet Controller , 1 x Intel® I211 Ethernet Controller	
	I/O Port	Bottom I/O 1 x DC jack 2 x HDMI out 2 x GbE LAN port 2 x RS-232/422/485 4 x USB 3.0 port Other 2 x USB 2.0 port (side) 1 x Audio out (side) + 1 x Mic in (side) 1 x Digital Mic (front, bottom)	
	Storage	1 x 2.5" accessible SATA HDD bay 2 x M-key M.2 2242/60/80 (PCIe+SATA) with RAID	
	Audio	2 x 3W Speaker	
	Webcam & Microphone	5-megapixel CMOS front-facing camera with auto-focus and digital microphone	
	Expansion Interface	1 x Full-size/half-size PCIe Mini (PCIe+USB)	
	LED Indicator	1 x RFID indicator 3 x Battery indicator (Color : Blue/Red) 1 x Power Indicator	
Other Features	Cooling Method	Fan-less	
Connectivity	Wi-Fi and Bluetooth	IEEE 802.11 a/b/g/n/ac 2T2R module with Bluetooth V4.2 (M.2 2230)	
Physical	Construction Material	ABS+PC plastic with anti-bacterial material	
	Mounting	Wall, Stand and Arm VESA 75/100	
	Net Weight	7.07 kg without batteries 8.43 kg with 3 batteries	8.18 kg without batteries 9.53 kg with 3 batteries
	Dimensions (WxHxD) (mm)	543 x 350 x 71 mm	594.6 x 379.6 x 71 mm
Environment	Operating Temperature	0℃~40℃	
	Storage Temperature	-20℃~60℃	
	Humidity	10% to 90% (non-condensing)	
	Vibration	1G	
	Shock	Operating Shock: 5G peak acceleration (11ms duration) Non-Operating Shock: 10G peak acceleration (11ms duration)	
	IP Level	Front: IP65, Back: IP32	
Power	Power Input	19V DC input	
	Power Adapter	150W medical power adapter	
	Battery	3 slots for Li-ion battery pack	
Certification		CE, FCC Class B part 18,ANSI / AAMI ES60601-1 CAN/CSA-C22.2 No. 60601-1:14, IEC 60601-1-6 / IEC62366, ISO 14971	

Ordering Information

Part No.	Description
POCm-W22C-ULT3-C/PC/4G-R10	21.5" 250cd/m^2 FHD medical panel PC with 6th generation 14nm Intel® mobile Celeron® 3855U (15W) 1.6GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 5-megapixel camera, microphone, R10
POCm-W22C-ULT3-i5/PC/4G-R10	21.5" 250cd/m^2 FHD medical panel PC with 6th generation 14nm Intel® mobile Core™ i5-6300U (15W) 2.4GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 5-megapixel camera, microphone, R10
POCm-W22C-ULT3-i7/PC/4G-R10	21.5" 250cd/m^2 FHD medical panel PC with 6th generation 14nm Intel® mobile Core™ i7-6600U (15W) 2.6GHz on-board processor (ULT), one 4GB DDR4 RAM , 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 5-megapixel camera, microphone, 10
POCm-W24C-ULT3-C/PC/4G-R10	24" 250cd/m^2 FHD medical panel PC with 6th generation 14nm Intel® mobile Celeron® 3855U (15W) 2.4GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 5-megapixel camera, microphone, R10
POCm-W24C-ULT3-i5/PC/4G-R10	24" 250cd/m^2 FHD medical panel PC with 6th generation 14nm Intel® mobile Core™ i5-6300U (15W) 2.4GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 5-megapixel camera, microphone, R10
POCm-W24C-ULT3-i7/PC/4G-R10	24" 250cd/m^2 FHD medical panel PC with 6th generation 14nm Intel® mobile Core™ i7-6600U (15W) 2.6GHz on-board processor (ULT), one 4GB DDR4 RAM, 802.11a/b/g/n/ac Wi-Fi module, PCAP touchscreen, 5-megapixel camera, microphone, R10

Options

Part No.	Description
MEDP-HS-R10	USB interface VoIP phone and its holder, white
MEDP-CR-02-R10	Magnetic card reader/Smart card reader/Fingerprint sensor, white
MEDP-MF-RFID-R10	MIFARE RFID reader, 13.56MHz, with LED indicator, IEI assembly only
MEDP-TPM-R10	Trusted platform module kit, IEI assembly only
MEDP-EZS-R10	VESA 100 x 100 mm panel PC stand with a cable management hole, white
POCm-DOCKING-6BAY-R10	6-slot battery charger, LED indicator, 15V/280W power adapter
POCm-W22C-ULT3-W10E64V-R10	OS image with 64bit Windows 10 IOT Enterprise for POCm series, with DVD-ROM
POCP-CC05-R10	Cable cover, white, plastic, R10
31603-000069-RS	3S3P Li-ion battery pack, 11.1V, 7800mAh

Packing List

Item	Description	Q'ty
Power Adapter	150W medical power adapter	1
Power Cord	European power cords, 183 CM, C13	1

2018