TRIO
MOTION TECHNOLOGY

A MEMBER OF THE **ESTUN** GROUP

TRIO MOTION TECHNOLOGY
PC-MCAT-2
P780 - P783

- THE MOTION SPECIALIST -

PC-MCAT-2
P780 - P783
Motion + PC Software Integration Solution

PC-MCAT-2 is an innovative 'Motion + PC Solution'. A choice of Intel processors (from Celeron through to core i3 - core i7) is used to drive both a high performance motion controller and a compact PC that can run user applications under Windows.

PC-MCAT-2 is especially suitable where a machine needs the software and hardware features of a PC, paired with a powerful 64 axis Motion Coordinator.
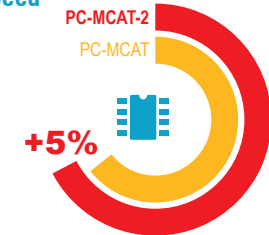
AT A GLANCE

✴ Motion + PC solution for Automation Machinery

✴ Fanless Compact PC with a choice of processors

✴ Up to 64 EtherCAT axes

✴ Plug and play EtherCAT configuration

✴ Built on Trio's Motion-iX advanced motion core

✴ Programmable in Trio's multi-tasking language or IEC61131-3

✴ Shared memory API interface to allow PC side applications to interface with Motion-iX

✴ RTX64 Real Time Extensions to Windows

✴ Up to 8 Gbyte DDR4 + 256 Gbyte SSD

✴ Built in Gbit ports for vision cameras

Processor Speed
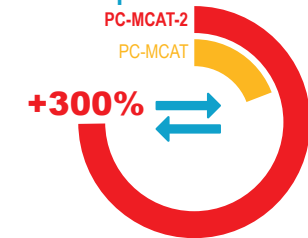PC-MCAT-2
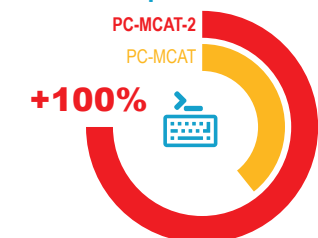PC-MCAT
+5%

Windows to Motion-iX Comms Speed
PC-MCAT-2
PC-MCAT
+300%

Motion-iX Program Execution Speed
PC-MCAT-2
PC-MCAT
+100%

PC-MCAT-2 v0.1.indd   2   25/07/2023   09:47:54
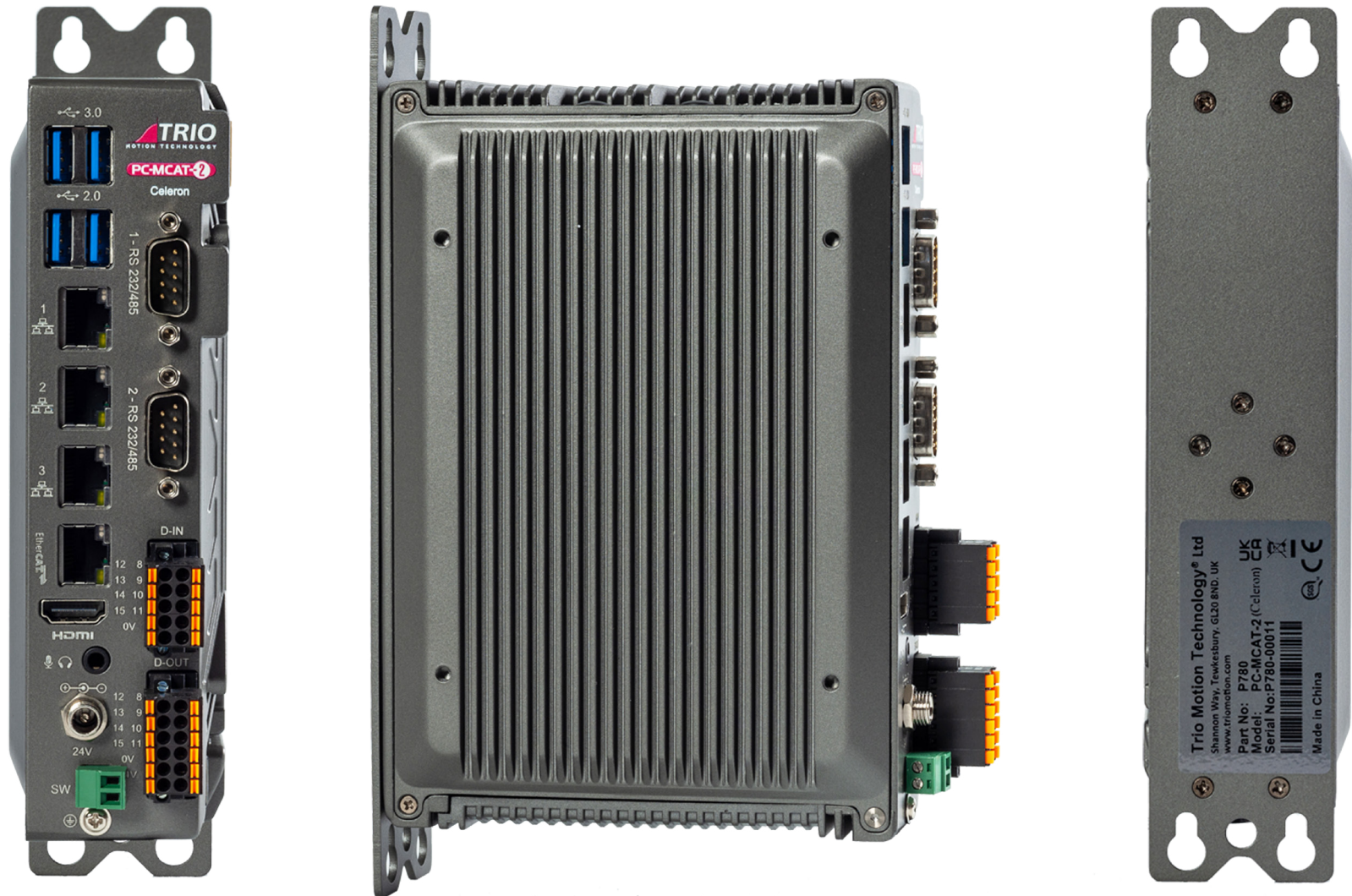
PC-MCAT-2
P780 - P783
Motion + PC Software Integration Solution

Trio's next generation PC-MCAT-2 combines PC technology with the Motion-iX advanced motion core allowing PC applications to run alongside real-time motion control and deterministic EtherCAT communication.

User programs can be written in Trio's established multi-tasking programming language or industry standard IEC61131-3 using the powerful *Motion* Perfect application development software. Alternatively, applications can be written and executed under Windows and use a shared memory API to communicate with Trio's Motion-iX advanced motion core, allowing maximum flexibility in application development.

PC-MCAT-2 supports a wide range of communication ports including Ethernet (up to 1000Mbit), USB (3.0 and 2.0) COM ports (RS232 and RS485) and HDMI for connectivity to PC peripherals. In addition to the communication ports, PC-MCAT-2 has 16 GPIO points, 8 DIN and 8 DOUT.

Supporting PC peripherals and off-the-shelf Windows applications alongside Trio's Motion-iX advanced motion core gives a high-performance flexible solution for applications where specific external devices are required such as vision applications.

- THE MOTION SPECIALIST -

PC-MCAT-2
P780 - P783
Motion + PC Software Integration Solution

TRIO
MOTION TECHNOLOGY
A MEMBER OF THE ESTUN GROUP

Description	Celeron P780	I3 P781	I5 P782	I7 P783
CPU	"Intel Celeron J6412 2.0GHz 1.5Mb Cache TDP 10W"	"Intel Core i3 8145U 2.1GHz 4Mb Cache TDP 15W"	"Intel Core i5 8265U 1.6GHz 4Mb Cache TDP 15W"	"Intel Core i7 8565U 1.8GHz 8Mb Cache TDP 15W"
Memory	4GB DDR4 2400MHz	4GB DDR4 2400MHz	8GB DDR4 2600MHz	8GB DDR4 2600MHz
SSD	64GB	128GB	128GB	256GB
Display	"Intel HD Graphics 3000 1x HDMI 1920x1080@60Hz"	"Intel HD Graphics 3000 1x HDMI 1920x1080@60Hz"	"Intel HD Graphics 3000 1x HDMI 1920x1080@60Hz"	"Intel HD Graphics 3000 1x HDMI 1920x1080@60Hz"
Operating System	Windows 10	Windows 10	Windows 10	Windows 10

Description	Celeron P780	I3 P781	I5 P782	I7 P783
AXES				
Max Axes	64	64	64	64
Max Networked Axes	64	64	64	64
Max Virtual Axes	64	64	64	64
PERFORMANCE				
Cores	4	2	4	4
Clock Frequency	2000MHz	2100MHz	1600MHz	1800MHz
Maths Precision	IEEE 457 Double	IEEE 457 Double	IEEE 457 Double	IEEE 457 Double
Position Register Precision	64 bit	64 bit	64 bit	64 bit
Exectuion Benchmark	292 lines/ms	292 lines/ms	292 lines/ms	292 lines/ms
Real Time Clock	yes	yes	yes	yes
Table Memory	512000 values	512000 values	512000 values	512000 values
Maximum VR Variable	65536	65536	65536	65536
Maxmum Servo Period	2000µs	2000µs	2000µs	2000µs
Minimum Servo Period	125µs	125µs	125µs	125µs

Description	Celeron P780	I3 P781	I5 P782	I7 P783
INTERFACES				
EtherCAT	1 Port	1 Port	1 Port	1 Port
Ethernet	3 Ports	3 Ports	3 Ports	3 Ports
RS232 / RS485	Yes	Yes	Yes	Yes
USB 3.0	2	4	4	4
USB 2.0	2	0	0	0
HDMI	Yes	Yes	Yes	Yes
Sound Port	Yes	Yes	Yes	Yes
On / Reset	Remote swich	Remote swich	Remote swich	Remote swich
PROTOCOLS				
EthernetIP	No	No	No	No
Hostlink	No	No	No	No
MODBUS-RTU	Yes	Yes	Yes	Yes
MODBUS-TCP/IP	Yes	Yes	Yes	Yes
EXTERNAL I/O				
24V Digital Outputs	8	8	8	8
24V Digital Inputs	8	8	8	8
Opto Isolated	Yes	Yes	Yes	Yes
Response Time	10ms	10ms	10ms	10ms

Description	Celeron P780	I3 P781	I5 P782	I7 P783
PROGRAMING				
TrioBasic	Yes	Yes	Yes	Yes
DXF in	Yes	Yes	Yes	Yes
G-code	Yes	Yes	Yes	Yes
HPGL	Yes	Yes	Yes	Yes
IEC61131	Option	Option	Option	Option
Kinematic	Option	Option	Option	Option
Maximum Programs	32	32	32	32
Maximum Tasks	22	22	22	22
SOFTWARE				
Motion Perfect version	5.3 or Higher	5.3 or Higher	5.3 or Higher	5.3 or Higher
PHYSICAL				
Maximum Operating Temperature	40°C	40°C	40°C	40°C
Minimum Operating Temperature	-10°C	-10°C	-10°C	-10°C
Mount	Panel	Panel	Panel	Panel
Depth	128.0mm	128.0mm	128.0mm	128.0mm
Height	207.0mm	207.0mm	207.0mm	207.0mm
Width	49.0mm	49.0mm	49.0mm	49.0mm
Weight	1280g	1280g	1340g	1340g
POWER				
Power Rating	72W	84W	84W	84W
Recommended Supply Current	3.0A	3.5A	3.5A	3.5A
Recommended Supply Voltage	24V	24V	24V	24V
Supply tolerance	+-10%	+-10%	+-10%	+-10%
CERTIFICATION				
CE	Yes	Yes	Yes	Yes
RoHS	Yes	Yes	Yes	Yes
UL*	Yes	Yes	Yes	Yes
*Tested to UL standards by Nationally Recognized Testing Laboratory				

Preliminary specifications may change without notice

PC-MCAT-2 v0.1.indd   4   25/07/2023   09:48:13

PC-MCAT-2
P780 - P783
Motion + PC Software Integration Solution

Dimensions

ON / OFF CONNECTOR
POWER 9V - 24V
AUDIO JACK
HDMI PORT
ETHERCAT PORT
NETWORK PORT (X3)
USB 2.0
USB 3.0

9 PIN SERIAL PORT
9 PIN SERIAL PORT
DIGITAL INPUTS
DIGITAL OUTPUTS

207mm

49mm

128mm
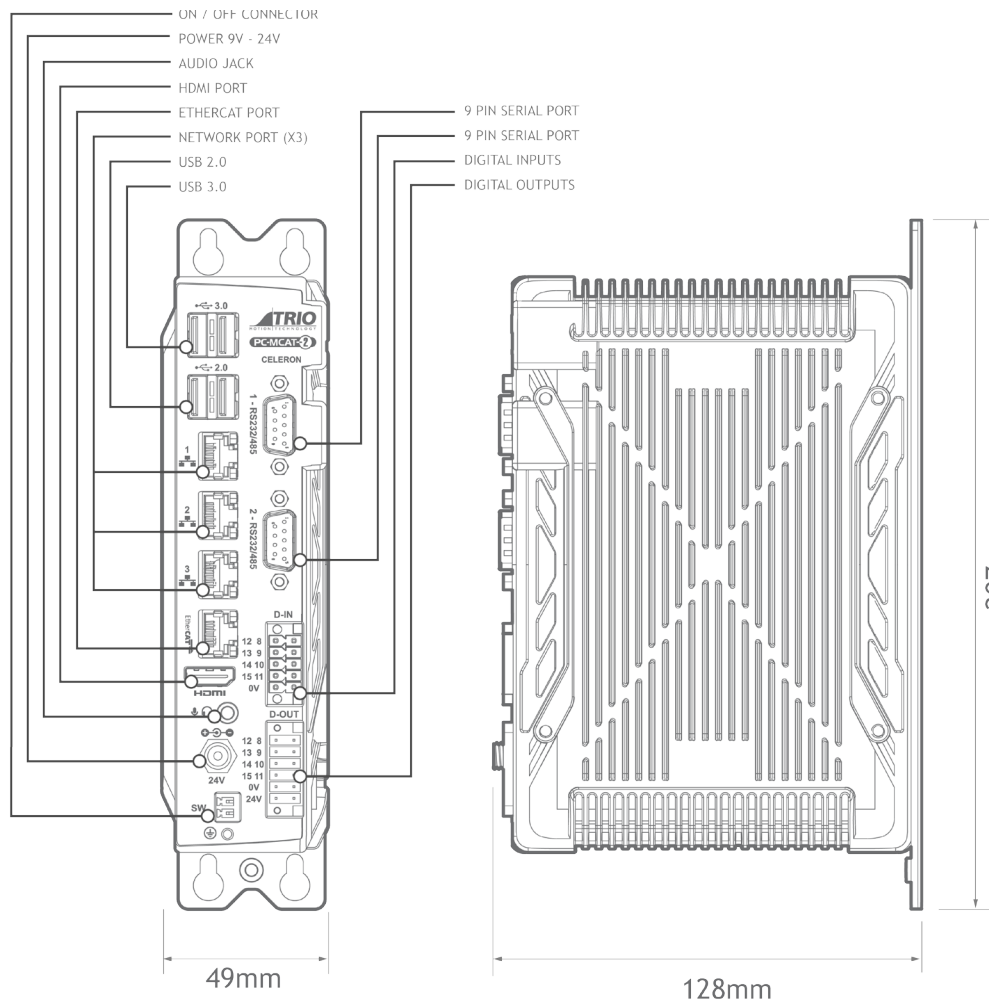
Part Numbers

P780	Celeron
P781	Core i3
P782	Core i5
P783	Core i7

Accessories

D3000 - D3035	DX3 Drives
D0100 - D0108	DX4 Drives
D0500 - D0508	DX5 Drives
P362 - P387	Flexslice Expansion Modules
P561 - P563	UNIPLAY HMI's
P750	Kinematic Runtime FEC
P912	Axis Upgrade FEC (Each P912 doubles the available axes)

- THE MOTION SPECIALIST -

Motion-iX

Motion Optimal Engineering Technologies

TRIO MOTION TECHNOLOGY
A MEMBER OF THE **ESTUN** GROUP

Trio Machine Automation Technology	Development Tools		Motion-iX Technology			Network / Technologies	
			Programming	Advanced Motion Core			
Trio has developed powerful rich set of software tools for use with Trio systems. These tools provide all the features necessary for setup and programming to ensure minimum development time.	Project Management	3D Visualisation	Multi-tasking Programming Language	64bit Precision	Up to 128 axis Coordination Control	EtherCAT	RTEX
	Security Project Encryption	6D Motion Scope	IEC61131-3 + PLCopen	Scalable Motion Technologies	Complex Motion	ETHERNET-IP	PROFINET
	Simulation	CAMGen VFFS Packaging	G-Code and HPGL	Path Planning Look Ahead	Kinematic SCARA Delta Cartesian	MODBUS	DEVICENET
	Drive Configuration	CAD2Motion	PC Application Development C#/C++ etc	API resources Windows DLL Linux Libs	Advanced Interpolation	CANOPEN	FUNCTIONAL SAFETY (STO)
	HMI Design	Program Libraries	ROBOTICS Programming AVHPcam	GEARING/CAM MOVELINK FLEXLINK	Registration Laser Power Modulation Laser Triggering		

Not all technologies are used with all Trio product.

Combining an advanced motion core with Trio's ease-of-use, Motion-iX offers performance and dependability of packaged solutions, from "The Motion Specialist", where motion is the core and not just a bolt-on capability.

Motion-iX – a unified software engineering framework for machine development, that places the focus on optimising motion and complex kinematics, including robotics such as SCARA, to deliver truly optimal machine control performance.

Motion-iX includes development in IEC61131 and PLCopen, and boasts inverse kinematics capabilities to truly coordinate all machine axes as one, including

robots to maintain tight synchronisation or robots and machine as one. Virtualization allows simulation of the mechanics and motion to significantly reduce development and testing, delivering optimal control every time, by minimising machine cycle times.

Trio Global
Worldwide Network
Design, Develop and Support Worldwide

TRIO
MOTION TECHNOLOGY
A MEMBER OF THE **ESTUN** GROUP

TRIO OFFICES
UK - Tewkesbury HQ
USA - Pittsburgh
India - Pune
China - Shanghai
Italy - Milan

R&D Centres
2 x Control & Software Technology
2 x Servo Drives & motors

EUROPE
BELGIUM
DENMARK
FRANCE
GERMANY

HUNGARY
ITALY
NETHERLANDS
NORWAY

POLAND
PORTUGAL
ROMANIA
SLOVAKIA

SLOVENIA
SPAIN
TURKEY
UK

NORTH AMERICA
ALABAMA
ARIZONA
CALIFORNIA
ONTARIO
QUEBEC
COLORADO
CONNECTICUT
FLORIDA
GEORGIA
ILLINOIS
INDIANA
IOWA
MASSACHUSETTS
MEXICO
MICHIGAN

MINNESOTA
MISSISSIPPI
NEW JERSEY
NEW YORK
NORTH CAROLINA
OHIO
PENNSYLVANIA
SOUTH CAROLINA
TENNESSEE
TEXAS
UTAH
VIRGINIA
WASHINGTON
WISCONSIN

SOUTH AMERICA
ARGENTINA
BRAZIL

CHINA
BEIJING
DONGGUAN
GUANGDONG
SHANGHAI
YANTAI

MIDDLE EAST
ISRAEL
UAE

ASIA
INDIA
KOREA
SINGAPORE
TAIWAN
THAILAND

OCEANIA
AUSTRALIA
NEW ZEALAND

103 Sales Partners Globally

18 Integrators

32 Countries of Sale

Preliminary specifications may change without notice

- THE MOTION SPECIALIST -

TRIO

M O T I O N | T E C H N O L O G Y

A MEMBER OF THE **ESTUN** GROUP

TRIO MOTION TECHNOLOGY
PC-MCAT-2
P780 - P783

Trio Motion Technology specialises in advanced motion control as a core, providing a range of *Motion Coordinators,* drives and motors, expansion interfaces, I/O modules and HMI's built on Motion-iX technologies and designed to enable the control of industrial machines with the minimum of external components.

In support of the Trio concept, we aim to offer the best technical support by telephone, email, our comprehensive website and training courses held throughout the year. Please look at our web site for details.

www.triomotion.com

TRIO MOTION TECHNOLOGY
UK | USA | CHINA | INDIA
WWW.TRIOMOTION.COM

©Trio Motion Technology 2023. All Trademarks are acknowledged.
Specifications may be subject to change without notice. E & O.E.

PC-MCAT-2 v1.preliminary 2023