(mm)

186

267

40

CCpilot V1090 10" TERMINAL FOR PROCESS CONTROL, HMI SYSTEMS & PRESCISION TASKS

The **CCpilot V1090** display computer is designed for advanced productivity and assistance systems including ISOBUS terminals, 2D/3D machine control and guidance systems. Key features include a 12-inch display, robust aluminium housing, accessible USB port, and fast attach/detach connectors for easy removal and theft prevention. It comes with a rich interface set-up for CAN and Ethernet networking, supporting 100/1000Base-T1 and 1000Base-TX. An optional integrated 100Base-T1 switch can manage up to 4 connections. This makes the V1090 ideal for a vision system, with no external switch required.

With a high brightness, high contrast wide XGA resolution IPS type display the CCpilot V1090 provides intuitive user interaction with multi-touch PCAP, also with gloves. This allows for concurrent visualization of multiple applications and reliable operation in harsh conditions with readability in direct sunlight aided by the optically bonded screen to reduce reflections and eliminate fogging. The CCpilot V1090 integrates MAX9867 audio codec and PipeWire to support high-quality, flexible audio functionality to enhance the cabin experience, deliver audio notifications, and facilitate communication.

This is also a very powerful platform for OEM factory fit HMI systems. The CrossControl open software platform, and windowing framework, can run multiple software systems in parallel. This means that precision functionality, for example ISOBUS & guidance, can run side-by-side with commonly required HMI including base process control, instrumentation, vision systems & embedded manuals.

For HMI solutions in which a single display may not provide necessary screen real estate the platform can support an optional display link interface for a secondary monitor in sizes 7", 10" or 12", or even a 5" display to act as a smart control pad. **Turn for technical specifications »**

crosscontrol
making machines smarter, safer and more productive

The content herein is preliminary and may be subject to change without further notice.

CCpilot V1090 PRODUCT SPECIFICATIONS

COMPUTING CORE

OVERVIEW	i.MX 8QuadXPlus, iGPU & M4 Co-processor.
CPU	4 x Cortex A35 @ 1.2 GHz
GPU	Vivante GC7000lite
STORAGE	8 GB, enhanced mode eMMC pseudoSLC.
RAM	2 GB 32 bit LPDDR4 @ 1200GHz

DISPLAY

TYPE	IPS Type with >85° viewing angles in all directions
COVER LENS	Tempered glass with AG coating
OPTICAL BONDING	Touch screen with optically bonded cover lens
SIZE AND RESOLUTION	10.1" WXGA, 1280x800 pixels
COLOR DEPTH	24 bit, 16 million
CONTRAST RATIO*	800:1
BRIGHTNESS*	900 cd/m²
DIMMING	Yes, in steps, 1-100%
AMBIENT LIGHT SENSOR	Yes, enabling automatic dimming

HMI

TOUCH SCREEN	Projective Capacitive with up to 10-point multi-touch. Calibrated to support interaction with gloves or be insensitive to water drops.
STATUS LED	RGB LED
BUZZER	Yes, configurable sound. 95 dB @ 10cm.

INTERFACES

CAN	1 x CANbus as standard, 2 x CANbus optional, physical layer ISO 11898 2:2016. ISO11783-5:2019 compatible (2ms interrupts with a capacitor). Configurable bit rate. CAN FD compliant. Galvanic isolation optional.
USB	1 x USB 2.0 high with USB A side socket
I/O	2 x Inputs, 2 x Outputs, configurable.
ETHERNET	1 x 1000BASE-TX, 1 x 1000BASE-T1 optional, 4 x 100BASE-T1 optional.
POWER SUPPLY	12/24 VDC nominal, range 9-36 VDC. Power on from 4.5 Volt over DC.
KEY SWITCH	1 input, for start-up/suspend/resume/shutdown.
WIRELESS CONNECTIVITY	Optional module with Wi-Fi 802.11ac/a/b/g/n, dual-band 2.4/5 GHz and Bluetooth 5.0.
RS232	RxD and TxD, galvanic isolation optional.
AUDIO	Mic In and stereo Line Out, optional.

MECHANICAL

HOUSING MATERIAL	Aluminium
INSTALLATION	4 point VESA 75 mount
CONNECTORS	Deutsch DT for power, CAN. I/O, ignition, RS232 and Audio, M12 for Ethernet. Fakra antenna.
DIMENSIONS (mm)	267 x 186 x 40
WEIGHT (g)	~ 1500 g

OPERATING SYSTEM

SYSTEM	Custom Linux system based on Yocto 4.0+
KERNEL	5.15 (Long Term Support)
BSP	Available to create a custom Linux image
COMPUTING AND GRAPHICS APIs	Support for advanced UX and computing tasks: OpenGL ES, Vulkan, OpenCL, OpenVG
BOOTUP TIME	Configurable. Cold boot 3-7 sec, resume <1 sec

ENVIRONMENTAL SPECIFICATIONS

IP CLASS	IP65/66/67
EMC CONFORMITY	2014/30/EU, ISO 14982-, ISO 11783-5:2019 (ISOBUS compliance 2ms interrupts.) ISO 11783-2:201, ISO 13766-1/2
VIBRATIONS	IEC 60068-2-64. Random, 0.02g²/Hz 5-2000Hz 3x3h
SHOCK	IEC 60068-2-27. ±25g /6ms±3 x3, 15000 total shocks
TEMPERATURE RANGE (°C)	IEC 60068-2. Operational -30°C to +70°C, 5C/min, 1h hold time, 20 cycles. -30C and +70 C for 24 hours. Storage -40°C to +80°C
OTHER	Chemicals resistance, UV, Ball Drop Test

SOFTWARE FRAMEWORKS & TOOLS

DEVELOPMENT ENVIRONMENT	Virtual machine or Native Linux.
PROGRAMMING	Supported languages include C++, C, QML, JavaScript, Python, HTML5, IEC61131-3.
GCC COMPILER	GCC C++17 or newer
UI FRAMEWORKS	Supports Qt6 and Qt5. Qt Commercial is optional, enables closing access to the system. Support for Web frameworks.
WINDOWING	Weston, Qt Wayland. X Wayland. Direct EGLFS is available if windowing is not required.

APPLICATION PLATFORM
LinX Software Suite, open and modular platform based on Qt, common for all CCpilot products. Examples of modules and components listed below.

GUI DESIGN	UX Designer, a pre-built virtual machine with Qt Creator, compilers, libraries, graphical components and templates.
CAN NETWORKING	Fieldbus Access, easy configuration of J1939 and CANopen networks.
ISOBUS	Universal Terminal
REMOTE ACCESS	VNC server and client, web browser and server.
SOFT PLC	CODESYS 3.5
DIGITAL VIDEO	Ready-made solution for displaying multiple digital camera streams over Ethernet. RTP, MPEG4, MJPEG, H.264 (4Kp30) and H.265. Support for controlling camera settings like resolution and frame rate.

PLATFORM SUPPORT

Below you find specifications of features for which the product platform has inherent hardware support. These are not currently available in the standard product specified above but may be added over time in the generic evolution of the product, or added for a specific, larger customer program.

LARGER STORAGE	Expandable up to 32 GB enhanced mode eMMC pseudoSLC. Possible to increase storage even more through Mini-PCIe card (see below).
TOUCH SCREEN SENSITIVITY	Option to have touch controller calibrated for special use cases.
SECURITY	RSA/AES, elliptic-curve cryptography, key storage, secure boot-up, signed applications, docker.
Qt AUTOMOTIVE	Supports Qt Automotive, featuring e.g. safe rendering and IVI applications.
MONITOR	Optional display link for additional monitors
EXPANSION CARDS & MODULES	Mini-PCIe boards and modules can be added for extending functionality and performance. E.g. AI/ML accelerator modules, radio and connectivity modules, storage cards.
OS IN CO-PROCESSOR	Supports use of an RTOS in the integrated Cortex- M4F companion microcontroller (co-processor). For implementation of real-time critical and safety functionality.
KEY SWITCH	Support for a second key switch for pre-ignition.
FAST BOOT	Configurable to 3 sec, System resume <1 sec
100BASE-T1 SWITCH	Integrated switch for connecting up to 4x 100BASE-T1 cameras to the display via one DIN M12 X-coded 8-pin connector.

* Typical values

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