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**Immense Oak
Technologies**

Introduzione agli **SMART HMI**



What is Smart HMI?



Highly Integrated Solutions

LCM + Control Board(MCU+GPU) & Firmware + Development Platform



IOT's Smart HMI

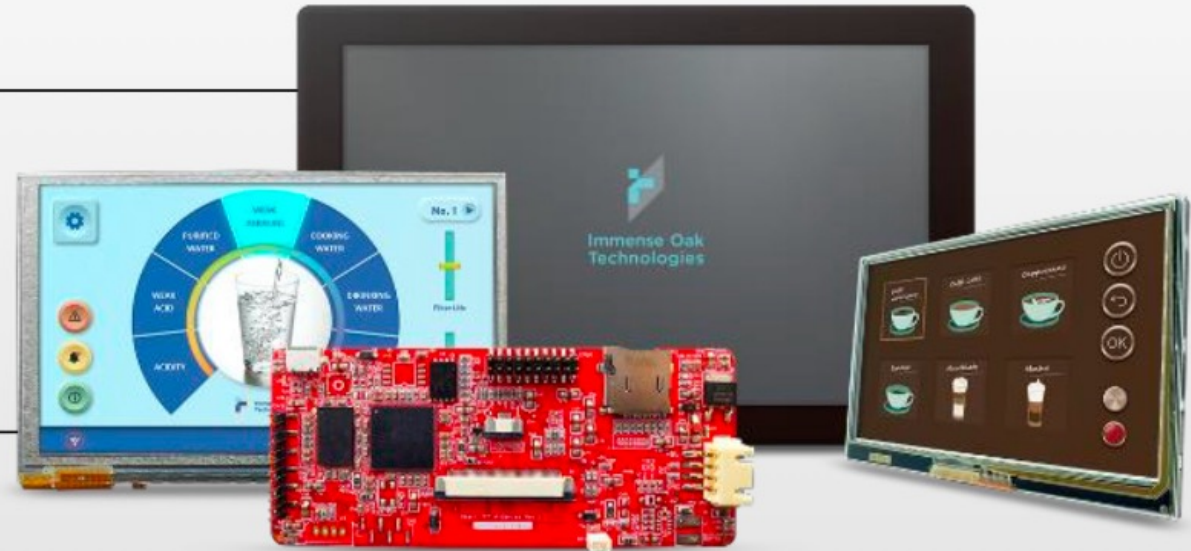
ADE (Acorn Development Environment)

Free Download from our website

Control Board+LCM

Target Products

Must work with ADE





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Development Platform

Lavora solo su piattaforma Windows



Widget Libraries

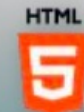
ADE

Acorn Development Environment

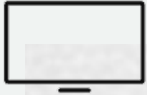


What You See is What Is What You Get

Team Work

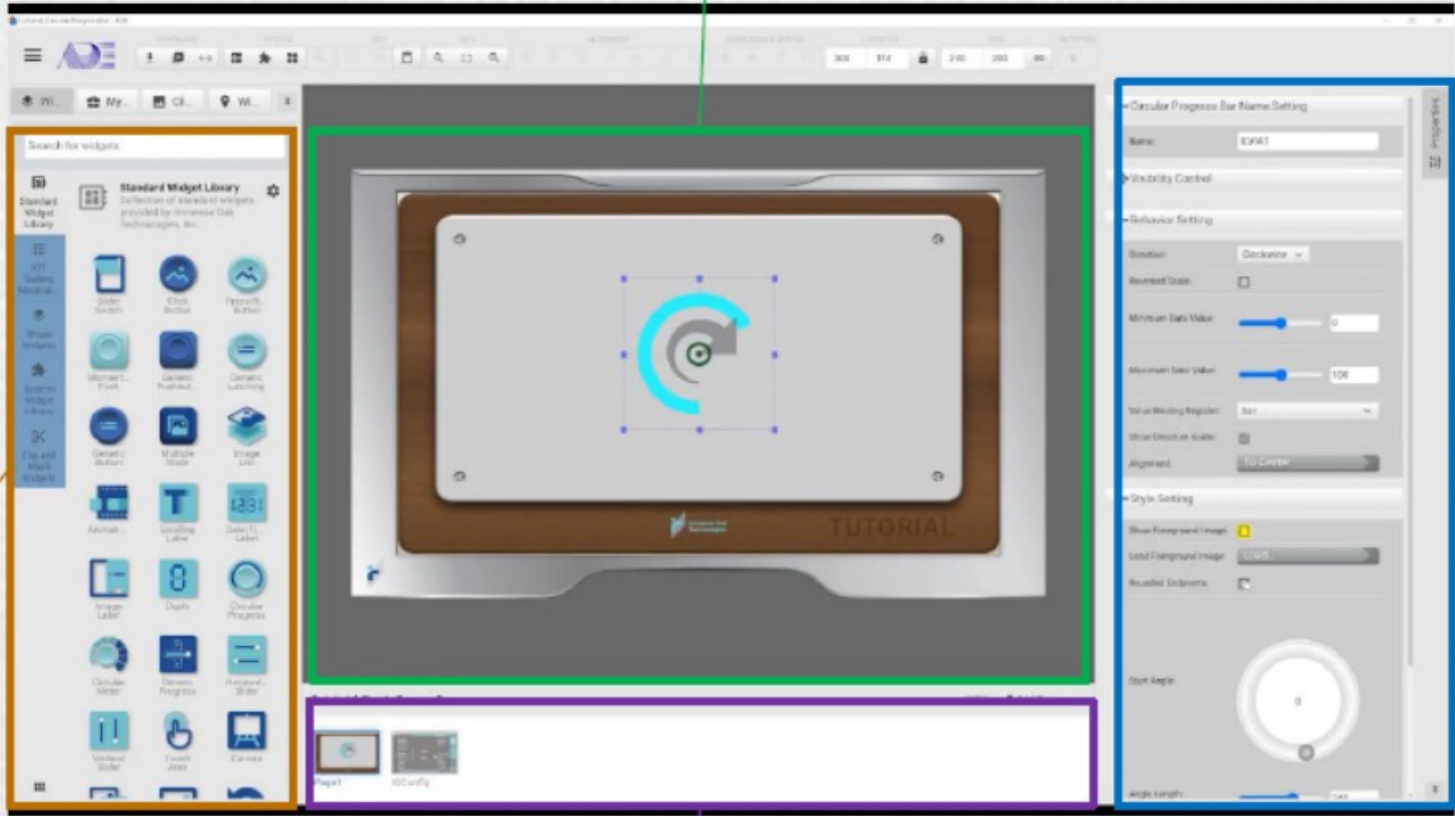


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Edit area

Widget
(icon, slide
bar, meter)



Control
and
Setting

Page



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GUI



GPIO/PWM/ADC/UART



RS-232/RS-485/Ethernet
/CANBus/WiFi/BT/NB-IoT

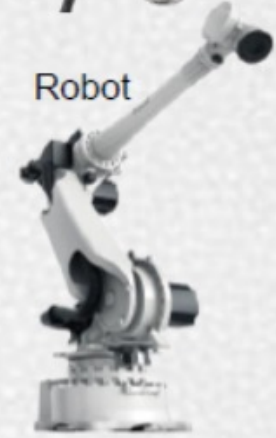
Temp. Sensor



Food processor



Robot



Coffee machine



Motor



Refrigerator



PLC





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Customized designs for LCM, touch panels, housing, system board (software & hardware) and peripheral components.

Cover Glass



Optical bonding

Touch panel



Optical bonding

LCM



Backlight Unit



System board
(hardware + firmware)



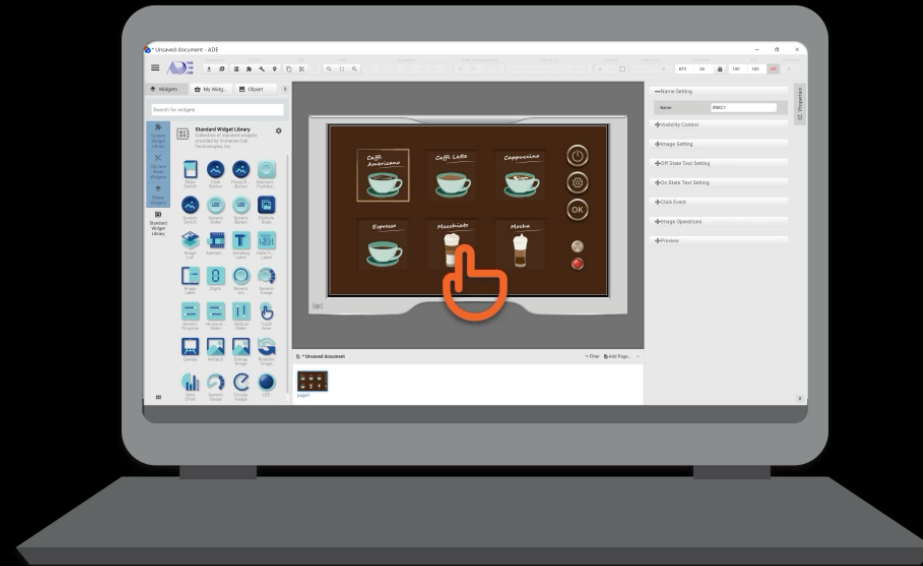
Total Solutions

Customized solutions on demand



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Un unico strumento per progettazione,
simulazione e distribuzione





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librerie di widget complete per la progettazione GUI
Python per implementare la comunicazione e il controllo
Configurazione degli I/O
Implementazione della comunicazione e controllo della GUI

NEXUS PANEL

Disponibile con:

7" 800x480 TN-IPS panel

10.1" 1024x600 IPS panel

CTP touch

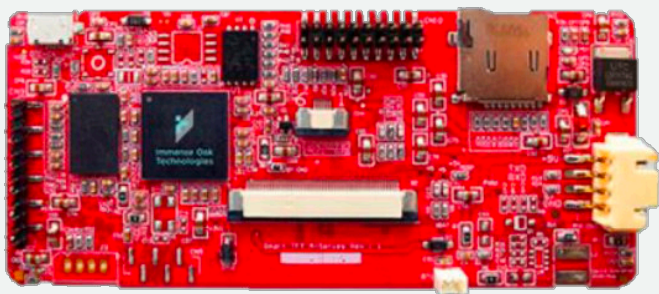




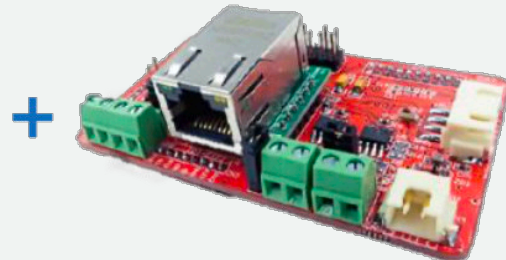
No hardware NRE is required by using a standard LCM module

Size	Resolution	LCD interface	LCD Type	Brightness	Operating Temp.	Storage Temp.	System board
4.3"	480 x 272	Parallel 24-bit RGB	TN/Normally White	800	-20°C~70°C	-30°C~80°C	Ubique (+5V)
5.0"	800 x 480	Parallel 24-bit RGB	IPS / Normal Black	800	-20°C~70°C	-30°C~80°C	Ubique (+5V)
7"		Parallel 24-bit RGB	TN/Normally white	850	-20°C~70°C	-30°C~80°C	Ubique (+5V)
8.0"	800 x 600	Parallel 24-bit RGB	TN/Normally white	400	-20°C~70°C	-30°C~80°C	Ubique (+5V)
10.1"	1024 x 600	Parallel 24-bit RGB	IPS / Normal Black	1000	-20°C~70°C	-30°C~80°C	Nexus (+12~+24V)

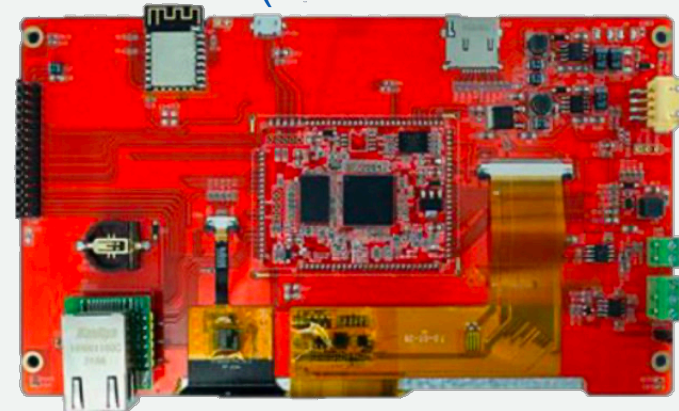
Ubique board



Extension board
(Communications)



Nexus board (with communications)





Ubique board interfaces

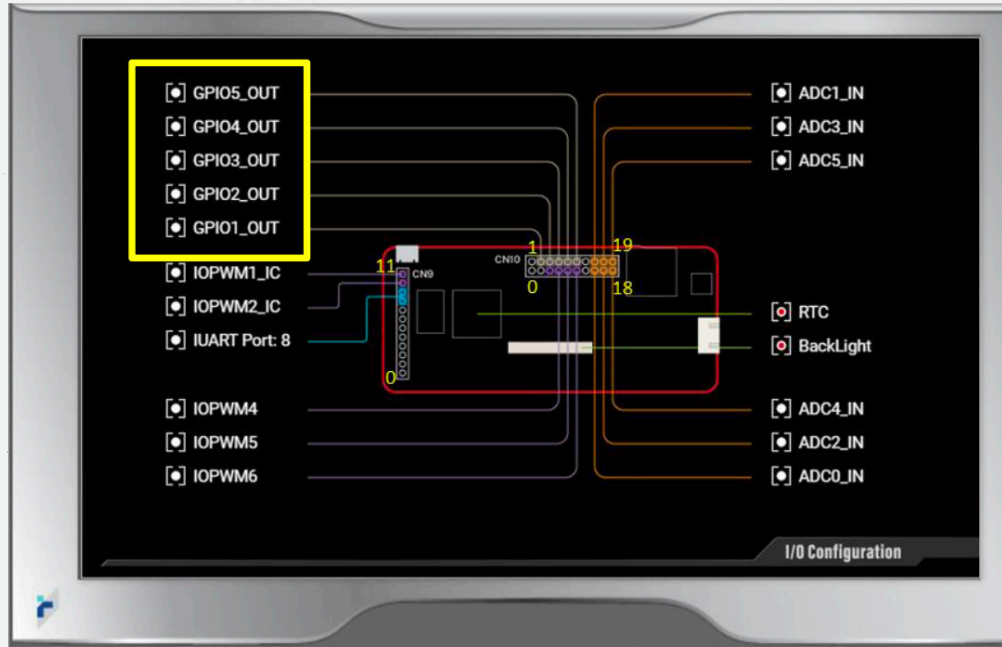
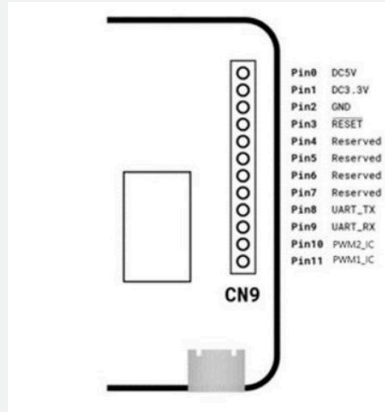


Figure 2. CN10 Pin Definition

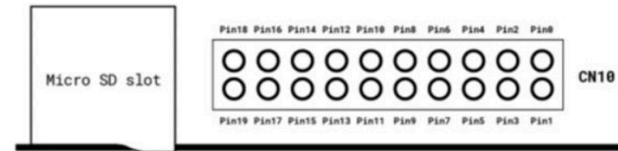
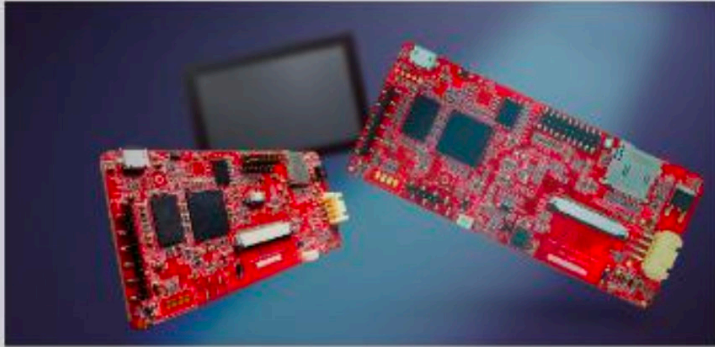


Table 3. CN10 Pin Definition

Pin Number	Name	I/O	Description
0	DC5V	P	DC 5V output.
1	GND	P	Supply Ground.
2	DC3.3V	P	DC 3.3V output.
3	GPIO1	I/O	General Purpose Input/Output, 3.3V Level - 5V Tolerant.
4	Reserved	N/A	Reserved.
5	GPIO2	I/O	General Purpose Input/Output, 3.3V Level - 5V Tolerant.
6	PWM4	I/O	This pin offers two different functions: GPIO and PWM. Users can select which function to be assigned to this pin inside ADE. For PWM, this pin generates digital pulses based on the parameters including frequency and duration set in the ADE.
7	GPIO3	I/O	General Purpose Input/Output, 3.3V Level - 5V Tolerant.
8	PWM5	I/O	This pin shares the same functionality as that of PWM4. Please refer to PWM4 description for details.
9	GPIO4	I/O	General Purpose Input/Output, 3.3V Level - 5V Tolerant.
10	PWM6	I/O	This pin shares the same functionality as that of PWM4. Please refer to PWM4 description for details.
11	GPIO5	I/O	General Purpose Input/Output, 3.3V Level - 5V Tolerant.
12	GND	P	Supply Ground.
13			
14	ADC0	I/O	General Purpose I/O pin with Analog Capability. This pin has a range of 0-3.3V when used as an Analog Input, and is 3.3V tolerant only.
15	ADC1	I/O	General Purpose I/O pin with Analog Capability. This pin has a range of 0-3.3V when used as an Analog Input, and is 3.3V tolerant only.
16	ADC2	I/O	General Purpose I/O pin with Analog Capability. This pin has a range of 0-3.3V when used as an Analog Input, and is 3.3V tolerant only.
17	ADC3	I/O	General Purpose I/O pin with Analog Capability. This pin has a range of 0-3.3V when used as an Analog Input, and is 3.3V tolerant only.
18	ADC4	I/O	General Purpose I/O pin with Analog Capability. This pin has a range of 0-3.3V when used as an Analog Input, and is 3.3V tolerant only.
19	ADC5	I/O	General Purpose I/O pin with Analog Capability. This pin has a range of 0-3.3V when used as an Analog Input, and is 3.3V tolerant only.

Note: I = Input, O = Output, P = Power



Ubique Panel

- **ADE Development Process**
 - No-code/Low-code development process for shorter time-to-market
- **Powerful hardware to deliver graphic, control and communication functions**
 - ARM Cortex M7-based MCU with 32MB DRAM and 256MB NAND Flash
- **Fascinating Visual Effect**
 - Support 16,777,216 colors
- **Integrate extension I/O functions**
 - Support ADC, PWM, GPIO, Input Capture
- **Extension boards to support communications**
 - Support RS-485, RS-232, Ethernet, CANBus, WiFi, BT, NB-IoT



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Nexus Panel

- **Extensive Connectivity delivered**
 - Support combinations of RS-485, RS-232, CANBus, Ethernet, WiFi, BT, NB-IoT
 - Location and orientation of communication ports can be customized
- **Powerful hardware as Ubique Panel**
- **ADE Design Process**
 - No-code/low-code. Communication protocol implementation in ADE by using Python
- **Fascinating Visual Effect**
 - Support 16,777,216 colors
- **Integrate extension I/O functions**
 - Support ADC, PWM, GPIO, Input Capture

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NEXUS PANEL FEATURES

	URT/IOT
CPU	CPU32-bit ARM Cortex M7 @480Mhz
Memory	32MB / 64MB
Storage	256MB
Colors	24-bit 16,777,216 colors
I/O Functions	
GPIO	up to 16
PWM	up to 5
ADC	up to 6
Input Capture	up to 5
UART	yes
Communications	Extended board / on board
RS485	yes
CAN-Bus	yes
WiFi	yes
Ethernet	yes
RS232	yes
BT	yes



Roadmap

System board	IC	Status	Voltage (V)	Size	Max. resolution	Interfaces
Ubique	STM32H750	MP	+5	4.3" 5.0" 7.0" 8.0"	800 x 600	<ul style="list-style-type: none">● Ubique system board interfaces : √ GPIO/PWM/ADC/UART/Input Capture● Extension board interfaces : √ RS-232/RS-485/Ethernet/CANBus/WiFi/BT/NB-IoT
Nexus	STM32H750	MP	+12~+24	5.0" 7.0" 10.1"	1024 x 600	<ul style="list-style-type: none">● Nexus system board interfaces √ GPIO/PWM/ADC/UART/Input Capture √ RS-232/RS-485/Ethernet/CANBus/WiFi/BT/NB-IoT
Magnus	STM32MP157	Developing	+12~+24	10.1" 11.6" 13.3" 15.6"	1920 x 1080	<ul style="list-style-type: none">● Magnus system board interfaces : √ GPIO/PWM/ADC/UART/Input Capture √ RS-232/RS-485/Ethernet/CANBus/WiFi/BT/NB-IoT



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STARTER KIT

Esempio :

7.0" 800x480
Resistive-Touch
Power Supply, AC/DC cables
USB, I/O Cables

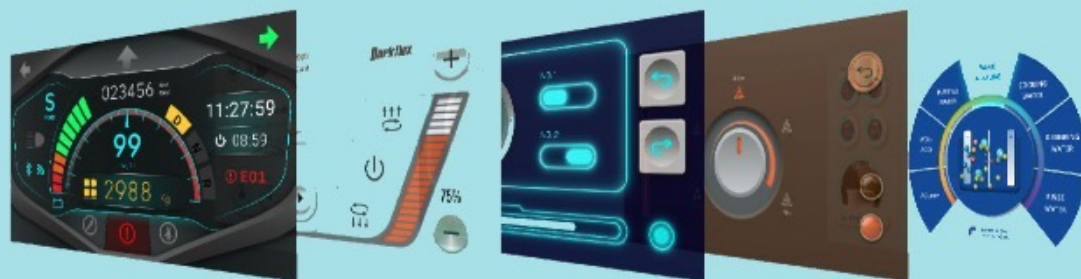




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PERSONALIZZAZIONI

CUSTOM SERVICE



UX Analysis and UI Design

- ❖ Progettazione di contenuti grafici
- ❖ Progettazione di interazione/interconnessione
- ❖ Progettazione di presentazioni informative



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ESEMPIO: ECG



In questo video, ti mostriamo quanto è facile progettare un HMI per un'applicazione sofisticata, clideo.com



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THANK YOU !

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