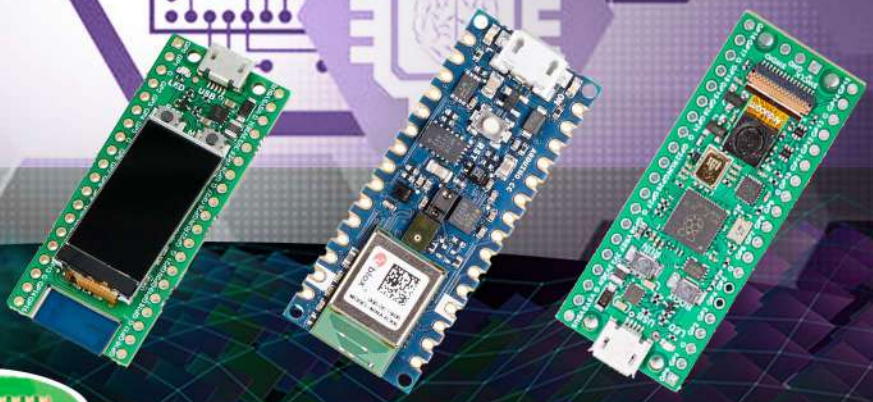
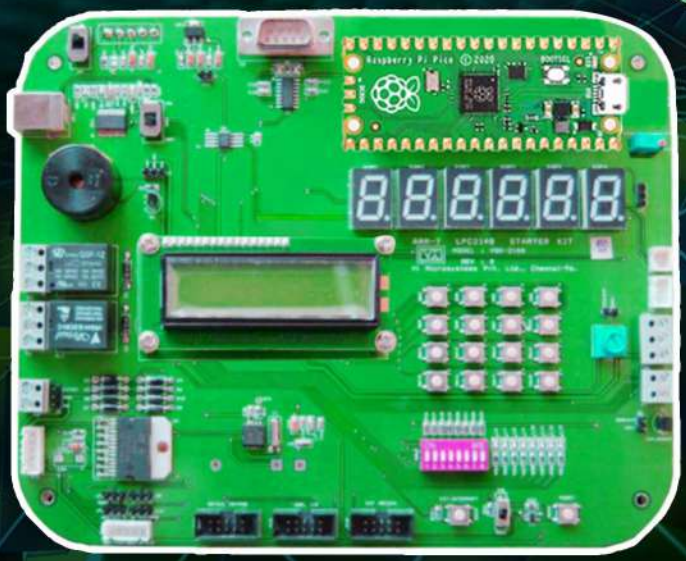
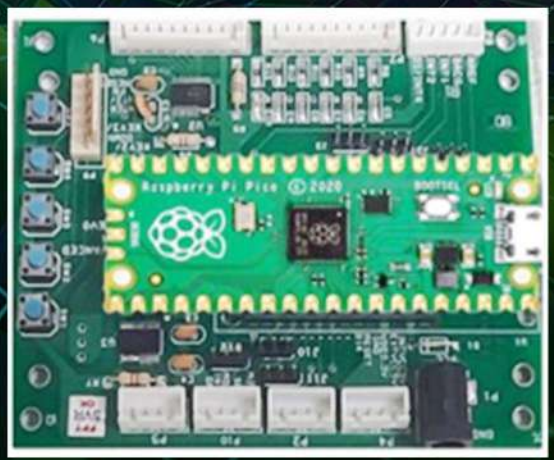
PRODUCTS FOR RP2040, ML/AI & EMBEDDED BOARDS







Vi Microsystems Pvt. Ltd.

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Phone : +91 94440 45621, Web : www.vimicrosystems.com

Email : sales@vimicrosystems.com, service@vimicrosystems.com

INDEX

EMBEDDED BOARDS :

1. RP2040 Development board VI-RP2040DB

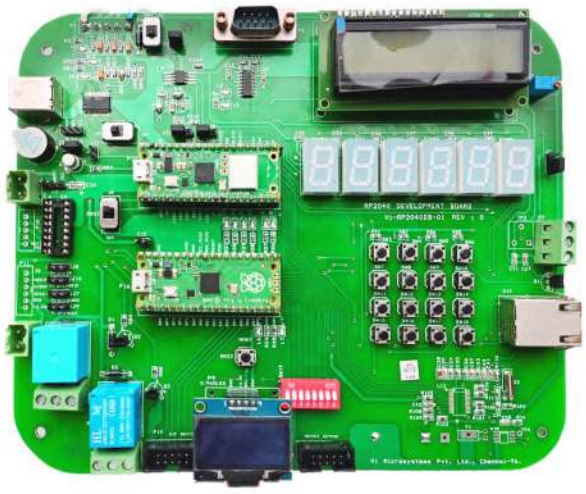
- This Development Board is designed to study the Raspberry Pi RP2040 Processor, to interface many Devices like 16x2 LCD Display, LEDs, Switches, Etc. and to develop many Embedded and IOT Applications.
- This Board consists of one Raspberry Pi Pico Module and one Raspberry Pi Pico W Module, each powered by the recently introduced Raspberry Pi RP2040 Processor.
- **RP2040 Dual Core Embedded Controller,** Designed by Raspberry Pi, RP2040 features a dual-core Arm Cortex-M0+ processor with 264kB internal RAM and support for up to 16MB of off-chip flash. A wide range of flexible I/O options includes I2C, SPI, and - uniquely - Programmable I/O (PIO). These support endless possible application.

Connect Wirelessly

Network your Pico for a complete IoT solution. Raspberry Pi Pico W comes with a fully certified module on board featuring 2.4GHz 802.11n wireless LAN, making it the perfect solution for IoT applications and projects requiring wireless communication

Features of Raspberry Pi RP2040 Module

- Based on Raspberry RP2040 Dual Core Cortex M0+ MCU
- Digital I/O Pins : 22 headers
- UART, SPI, I2C
- Memory : Flash : 2 MB, SDRAM: 264KB
- Clock Speed : up to 133 MHz
- Microcontroller : Dual Core Cortex M0+, 32bit ARM MCU
- Digital I/O Pins : 8 nos
- PWM Pins : 6 nos.
- Analog Inputs : 6 nos, 12bit



Features of Raspberry Pi Pico W Module

- Based on Raspberry RP2040 Dual Core Cortex M0+ MCU
- Digital I/O Pins : 22 headers
- UART, SPI, I2C
- Memory : Flash : 2 MB, SDRAM: 264KB
- Clock Speed : up to 133 MHz
- Microcontroller : Dual Core Cortex M0+, 32bit ARM MCU
- Digital I/O Pins : 8 nos.
- PWM Pins : 6 nos.
- Analog Inputs : 6 nos, 12bit
- wireless LAN : 2.4GHz 802.11n

VSK - RP2040 Board Features

i.Module-1 Raspberry Pi RP2040 Interface Devices

1. RS 232 signal at 9 pin D type connector / USB interface
2. Stepper Motor Driver /SPI signals terminated for 1No of PMOD angled connector
3. 8-nos of Digital Input by using 8-way Dip switch
4. 8-nos of Digital Output by using 8-nos of LED's
5. I2C based 0.96 Inch OLED
6. LM 35 Temperature sensor is provided
7. 1No of PWM Termination connector is provided

ii. Module-2 Raspberry Pi Pico W Interface Devices

1. RS 232 signal at 9 pin D type connector / USB interface
2. 4X4 Matrix Keypad Interface
3. Ethernet LAN using ENC28J60
4. 16 X 2 Alphanumeric LCD Display
5. 2Nos Relay Interface
6. 1No of Buzzer Interface
7. One Potentiometer is Provided for giving Analog Input
8. I2C Devices/ 2nos of ADC Termination connector is provided/ External I2C termination provided.
9. I2C Devices:
    a. RTC using PCF8583
    b. EEPROM using 24LC256
    c. 6nos of 7 segment Display using PCF8574

Programming Pico Modules

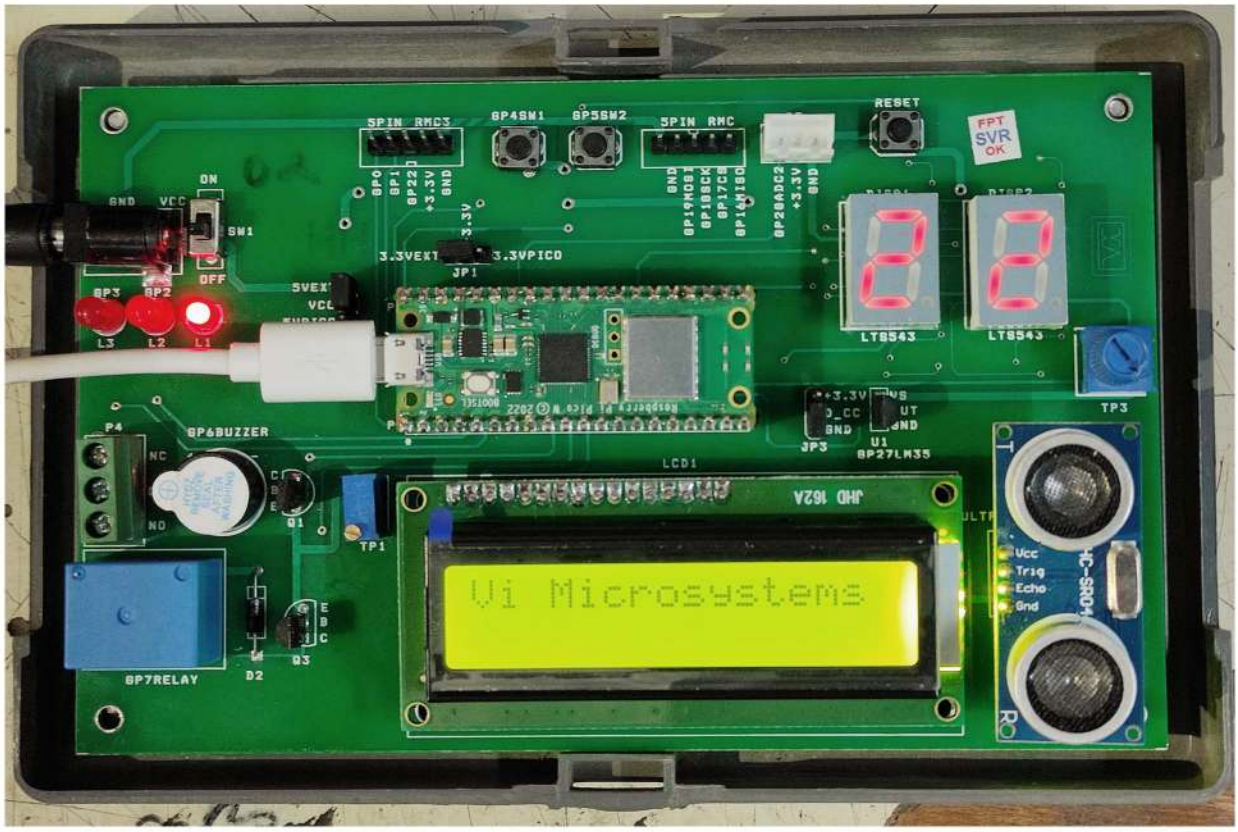
Programmable in C and Micro Python, Pico is adaptable to Vast Range of Application and Skill Levels; And Getting Statured is as easy dropping a file

Applications

From light displays and IoT devices to signage and manufacturing process, the Raspberry Pi Pico series gives you the power to control countless home, hobby, and industrial operation.

2. RP2040 Based Carrier Board

As Raspberry Pi based embedded Controllers become more and more awareness among students, Vi Micro has designed another innovative Carrier Board, based on Raspberry RP2040 Processor, which provides Dual Core Cortex M0+ Microcontroller, 16 GPIO, ADC, etc. to build many Embedded Applications and Study the Interfacing of Various Devices to RP2040



The RP2040 Dual Core Processor is used to build this Carrier Board, which consists of Dual Core Cortex M0+ Microcontroller with Flash RAM, PWM, ADC and many on board features.

Features:

- Based on Raspberry RP2040 Dual Core Cortex M0+ MCU
- Digital I/O Pins : 22 headers
- UART, SPI, I2C
- Memory : Flash : 2 MB, SDRAM: 264KB
- Clock Speed : up to 133 MHz
- Microcontroller : Dual Core Cortex M0+, 32bit ARM MCU
- Digital I/O Pins : 8 nos.
- PWM Pins : 6nos.
- Analog Inputs : 6no, 12bit

Carrier Board Features

- 3-nos of Analog Inputs are terminated at P2 connector
- 12bits, 350Ksps
- 1-no of Digital toAnalog is terminated at P5 connector
- 6 PWM Signals terminated at P3 connector.
- Buffer Provider for the PWM and Capture signals
- RS232 - Com Port interface with PC
- 20X4 Alphanumeric LCD Display
- 4 Push Button switches for user applications and its expansion available in P8 connector.
- On Board Devices
    - LM 35 sensor 1 no
    - LDR sensor 1 no
    - two nos of LED LED
    - Two nos of Micro switch
    - Buzzer 1 no
    - I2C Based OLED 1 no
    - Two nos of PWM termination connector
    - one no of SPI Termination Connector r
    - Four nos of GPIO Termination connector
    - Two nos of DAC Termination connector
    - Two nos of ADC Termination connector

3. Pico RP2040 Based 24 Channel Logic Analyzer

- A cost effective Logic Analyzer has been designed using Raspberry PI Picco RP2040, Dual Core Corex Mo+ Processor. A fast Level shifter is added to handle 5 Volt signals. A PC Screen can be used as GUI Display.

* Logic Analyzer offers up to 24 digital channels,
* pre, and post-trigger sampling, edge trigger and pattern trigger up to 16 bits.
* It can work with the Raspberry Pi Pico RP2040hardware.
* fast level shifter board for 5V I/Os

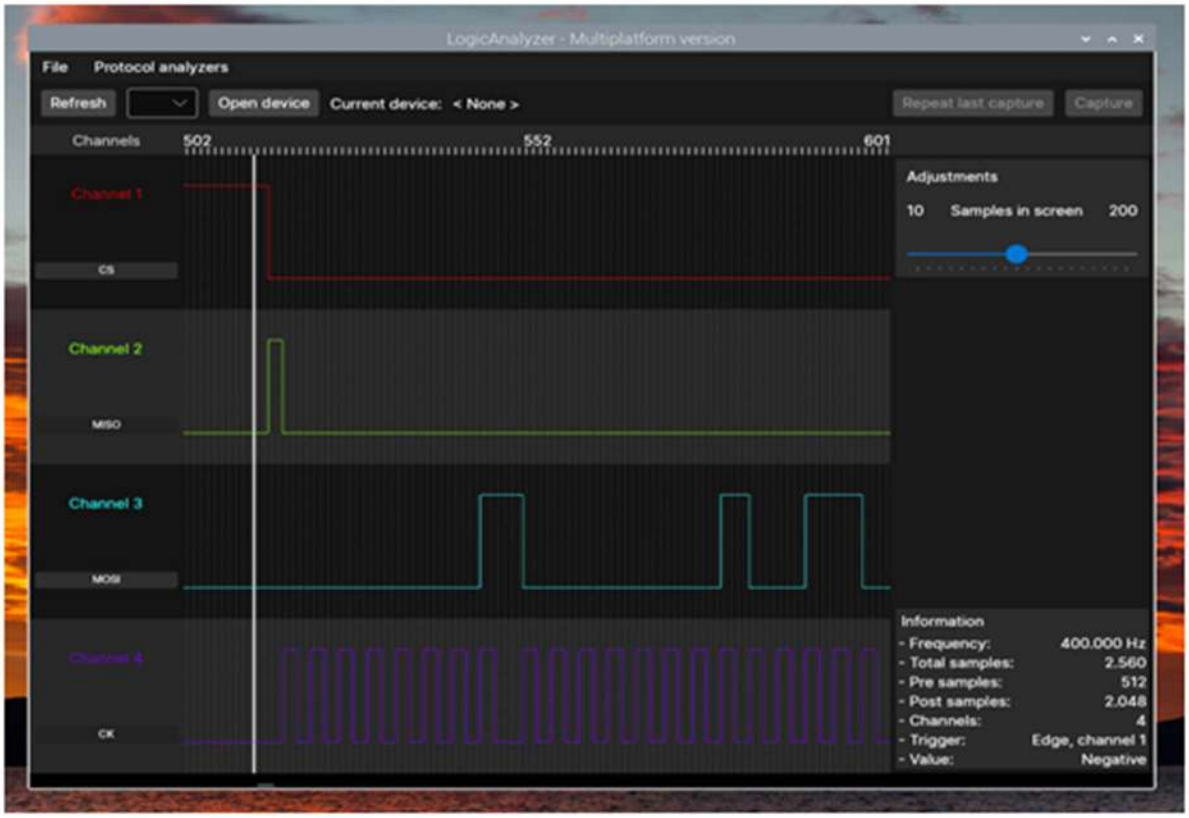
Features

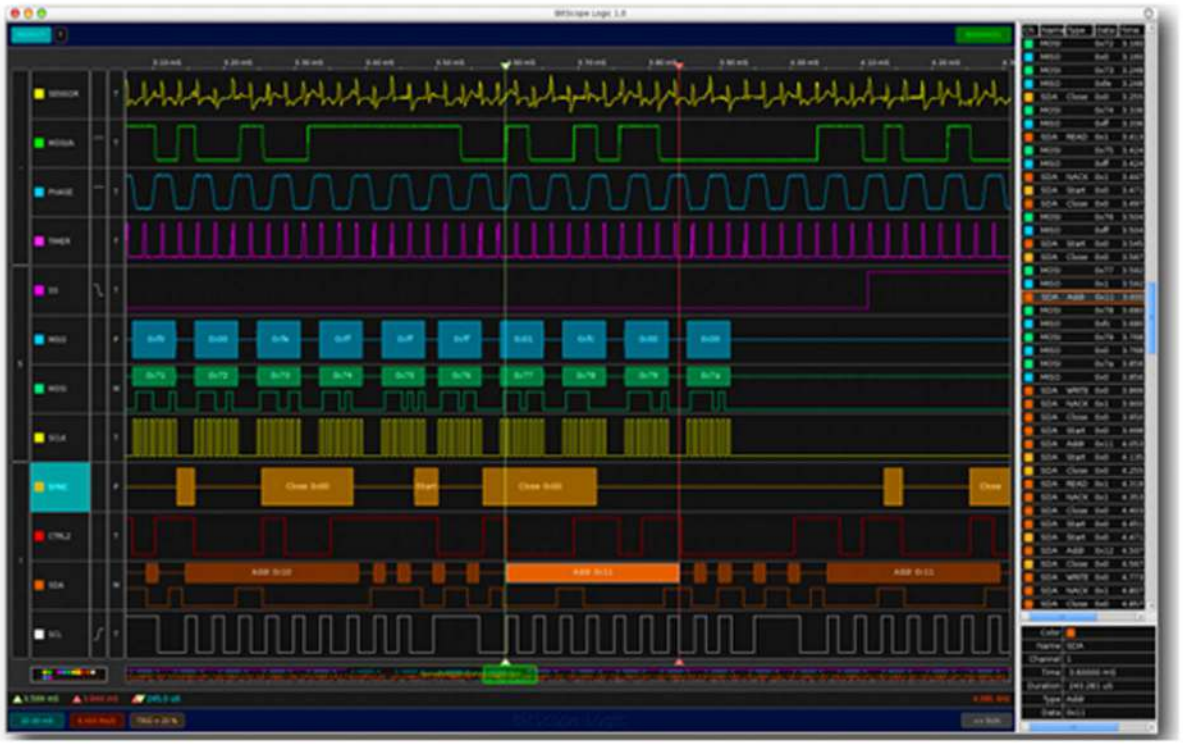
- Based on Raspberry RP2040 Dual Core Cortex M0+ MCU
- Digital I/O Pins : 22 headers
- UART, SPI, I2C
- Memory : Flash : 2 MB, SDRAM: 264KB
- Clock Speed : up to 133 MHz
- Microcontroller : Dual Core Cortex M0+, 32bit ARM MCU
- Digital I/O Pins : 8 nos.
- PWM Pins : 6nos.
- Analog Inputs : 6no, 12bit

Logic Analyzer RP 2040 Board Features

On Board Devices

- 24 channel logic analyzer with 100Msps, 32k samples deep, edge triggers and pattern triggers.
- 50 Pin FRC connector is Provided for 24 channel
- Fast 5 V logic to 3.3 V logic level shifter
- It can work with the Raspberry pi Pico RP2040 Hardware


LogicAnalyzer - Multiplatform version
File
Protocol analyzers
Refresh
Open device
Current device: < None >
Repeat last capture
Capture
Channels
502
552
601
Channel 1
CS
Channel 2
MISO
Channel 3
MOSI
Channel 4
CK
Adjustments
10
Samples in screen
200
Information
- Frequency: 400.000 Hz
- Total samples: 2.560
- Pre samples: 512
- Post samples: 2.048
- Channels: 4
- Trigger: Edge, channel 1
- Value: Negative



4. RP2040 Dual Core Based PWM Controller

As Raspberry based embedded Controllers become more and more awareness among students, Vi Micro has designed another innovative PWM Controller, based on Raspberry RP2040 Processor, which provides Dual Core Cortex M0+ Microcontroller, 16 PWMs, ADC, etc, to build many Power Electronics Applications.

- The RP2040 Dual Core Processor is used to build this PWM Controller,
- which consists of Dual Core Cortex M0+ Microcontroller with Flash Ram, PWM, ADC and many on board features.

Features

- Based on Raspberry RP2040 Dual Core Cortex M0+ MCU
- Digital I/O Pins: 22 headers
- UART, SPI, I2C
- Memory: Flash :2 MB, SDRAM: 264KB
- Clock Speed: up to 133 MHz
- Microcontroller:Dual Core Cortex-M0+ 32bit ARM MCU
- Digital I/O Pins: 8 nos.
- PWM Pins: 6nos.
- Analog Inputs: 6no, 12bit

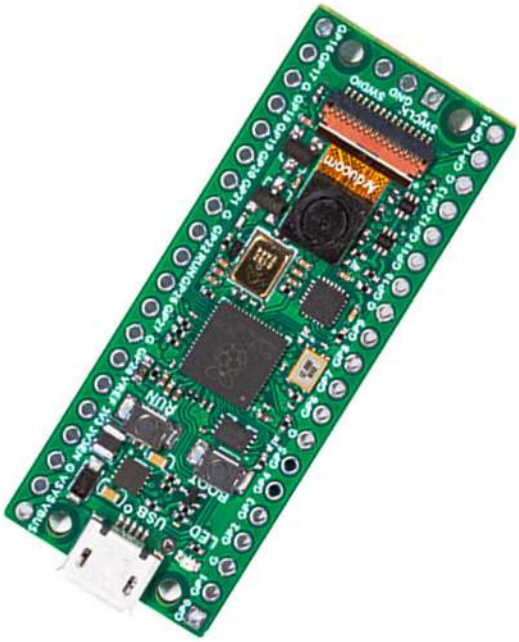
Carrier Board Features

- 3-nos of Analog Inputs are terminated at P2 connector
- 12bits, 350Ksps
- 1-no of Digital toAnalog is terminated at P5 connector
- 6 PWM Signals terminated at P3 connector.
- 3-nos of Capture are terminated at P4 connector for Proximity sensor and Quadrature Encoder Sensor interfacing.
- Buffer Provider for the PWM and Capture signals
- RS232 - Com Port interface with PC
- 20X4 Alphanumeric LCD Display
- 4 Push Button switches for user applications and its expansion available in P8 connector.
- PMOD connector provided for Hardware expansion.

5. RP2040 Based Tiny ML Development Board

This is an Arducam Pico4ML TinyML Dev Kit: RP2040 Board w/ QVGA Camera, LCD Screen, Onboard Audio, Reset Button & More
To make Raspberry Pi Pico more robust for TFLite Micro, the Arducam team took the Raspberry Silicon (also known as the RP2040 chip) and created Pico4ML, a microcontroller dev board made exclusively for running and training machine learning examples.

Pico4ML Specifications



- Microcontroller: Raspberry Pi RP2040
- IMU: ICM-20948 (low power)
- Mono channel microphone w/ direct PCM output
- Camera Module: HiMax HM01B0, Up to QVGA (320 x 240 @60fps)
- Screen: 0.96 inch LCD SPI Display (160 x 80, ST7735)
- Operating Voltage: 3.3V
- Input Voltage : VBUS: 5V +/- 10%. VSYS Max :5.5V
- Length : 51 mm
- Width : 21 mm

IMU Specifications

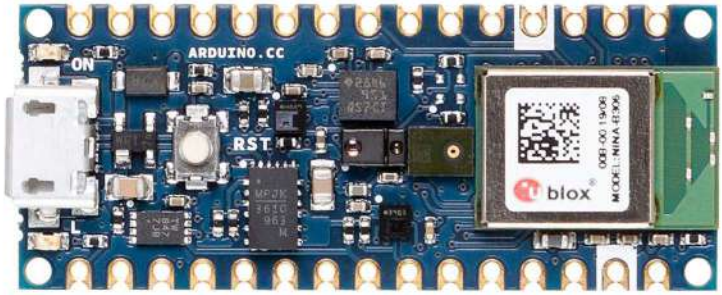
- 3-axis gyroscope, 3-axis accelerometer, 3-axis compass, and a Digital Motion Processor™ (DMPTM) in a 3 mm x 3 mm x 1 mm
- (24-pin QFN) package
- DMP offloads computation of motion processing algorithms from the host processor, improving system power performance
- EIS FSYNC support
- Lowest Power 9-Axis Device at 2.5 mW
- 3-Axis Gyroscope with Programmable FSR of ±250 dps, ±500 dps, ±1000 dps, and ±2000 dps
- 3-Axis Accelerometer with Programmable FSR of ±2g, ±4g, ±8g, and ±16g
- 3-Axis Compass with a wide range to ±4900 µT
- Onboard Digital Motion Processor (DMP)
- Android support
- Auxiliary I2C interface for external sensors
- On-Chip 16-bit ADCs and Programmable Filters
- 7 MHz SPI or 400 kHz Fast Mode I^2C
- Digital-output temperature sensor
- VDD operating range of 1.71V to 3.6V
- MEMS structure hermetically sealed and bonded at wafer level
- RoHS and Green compliant

Microphone

- Direct PCM output
- 20 bit, 16 kHz Sample Rate
- Mono Channel
- 64dB signal-to-noise ratio

6. Arduino Nano 33 BLE Sense Based ML Board

Nano 33 BLE Sense is a miniature sized module containing a NINA B306 module, based on Nordic nRF52480 and containing a Cortex M4F, a crypto chip which can securely store certificates and pre shared keys and a 9 axis IMU.
The module can either be mounted as a DIP component (when mounting pin headers), or as a SMT component, directly soldering it via the castellated pads



Features

NINA B306 Module

Processor

- 64 MHz Arm® Cortex-M4F (with FPU)
- 1 MB Flash + 256 KB RAM

Peripherals

- Full-speed 12 Mbps USB
- NFC-A tag
- Arm CryptoCell CC310 security subsystem
- QSPI/SPI/TWI/I²S/PDM/QDEC
- High speed 32 MHz SPI
- Quad SPI interface 32 MHz
- EasyDMA for all digital interfaces
- 12-bit 200 ksps ADC
- 128 bit AES/ECB/CCM/AAR co-processor

Bluetooth® 5 multiprotocol radio

- 2 Mbps
- CSA #2
- Advertising Extensions
- Long Range
- +8 dBm TX power
- -95 dBm sensitivity
- 4.8 mA in TX (0 dBm)
- 4.6 mA in RX (1 Mbps)
- Integrated balun with 50 Ω single-ended output
- IEEE 802.15.4 radio support
- Thread
- Zigbee

LSM9DS1 (9 axis IMU)

- 3 acceleration channels, 3 angular rate channels, 3 magnetic field channels
- ±2/±4/±8/±16 g linear acceleration full scale
- ±4/±8/±12/±16 gauss magnetic full scale
- ±245/±500/±2000 dps angular rate full scale
- 16-bit data output

LPS22HB (Barometer and temperature sensor)

- 260 to 1260 hPa absolute pressure range with 24 bit precision
- High overpressure capability: 20x full-scale
- Embedded temperature compensation
- 16-bit temperature data output
- 1 Hz to 75 Hz output data rateInterrupt functions: Data Ready, FIFO flags, pressure thresholds

HTS221 (relative humidity sensor)

- 0-100% relative humidity range
- High rH sensitivity: 0.004% rH/LSB
- Humidity accuracy: ± 3.5% rH, 20 to +80% rH
- Temperature accuracy: ± 0.5 °C,15 to +40 °C
- 16-bit humidity and temperature output data

APDS-9960 (Digital proximity, Ambient light, RGB and Gesture Sensor)

- Ambient Light and RGB Color Sensing with UV and IR blocking filters
- Very high sensitivity – Ideally suited for operation behind dark glass
- Proximity Sensing with Ambient light rejection
- Complex Gesture Sensing

MP34DT05 (Digital Microphone)

- AOP = 122.5 dbSPL
- 64 dB signal-to-noise ratio
- Omnidirectional sensitivity
- –26 dBFS ± 3 dB sensitivity

ATECC608A (Crypto Chip)

- Cryptographic co-processor with secure hardware based key storage
- Protected storage for up to 16 keys, certificates or data
- ECDH: FIPS SP800-56A Elliptic Curve Diffie-Hellman
- NIST standard P256 elliptic curve support
- SHA-256 & HMAC hash including off-chip context save/restore
- AES-128 encrypt/decrypt, galois field multiply for GCM

MPM3610 DC-DC

- Regulates input voltage from up to 21V with a minimum of 65% efficiency @minimum load
  More than 85% efficiency @12V

7. Teaching the ARM Microcontroller RP2040 to Keep Up with Embedded Industry Technology Change by Vi Microsystems Pvt. Ltd.,

Vi Microsystems Pvt. Ltd. is a pioneer for Designing & Manufacturing Engineering Educational Lab Equipment.
We are catering more than 30 Laboratories for Mech, ECE, EEE, CSE & IT Branches of ITI, Polytechnic and Engineering Institutions with various ranges of products SINCE LAST FOUR DECADES.

Now, our Research & Development Department, Recognized by DSIR, Govt of India(Recognition NO. DSIR/TU/1448), Proudly Launches an Innovative Technological Solution for the New Embedded Microcontroller Raspberry RP2040. (With 6new Trainer Kits.)

Intel 8085, 8051, 89C51and their Derivatives were introduced in 1975 – 47 years Back. Now they are allobsolete.

Now, we need a good 32bit Embedded Controller for our numerous embedded applications for Real worldIndustrial applications.

Simultaneously, the Students ofEngineering Colleges, Polytechnics, ITI etc. need to be familiarized with the same processor.

ARM series of Embedded Microcontrollers are being used in many new embedded products at present in Industries.
ARM has 3 Families i. CORTEX M ii. CORTEX R iii. CORTEX A. In that, CORTEX seriesEmbedded Controllers are used for Real Time Industrial projects.

CORTEX M has series of Devices i Cortex M0+ ii. Cortex M1 iii. Cortex M3 iv. Cortex M4 v. Cortex M7 vi. Cortex M33 vi. Cortex M55 vii. Cortex M85.

All are based on Cortex M0+ base only, but by adding more features to make another Device, like by adding DSP to Cortex M0+, Cortex M4 has been created. Hence, by studying Cortex M0+, we can cover all Microcontrollersin Cortex M Family.

Raspberry Pi has, recently in 2021, introduced RP2040, a Dual core, 32bit Microcontroller based on Cortex M0+. RP2040, costs only Rs.375, and henceeach student can afford to buy one for their personnel learning at their Home.

We have just introduced 6 Products for the Next Gen Embedded Lab & details are enclosed for your kind perusal.

ThisARM kit VSK-RP2040 introduced by us will bea replacement or advanced one for VSK-2148 kit, which is based on the popular 16 bit, LPC2148 Embedded Microcontroller. However,LPC2148 Microcontroller is obsolete now and the industries are forced to change over to newer microcontrollers

This new kit is built on 32bit Dual Core Cortex M0+ @ 133Mhz Processor. With a 264kB on-chip SRAM memory, symmetric dual-core processor complex, deterministic bus fabric, novel 8 State machine-basedPIO, equivalent to 8 programmable real time processing units, 2MB of off-chip Flash memory and rich peripheral set augmented with our unique I/O subsystem, RP2040 provide professional users and students with unrivaled power and flexibility.

Hence, it is a superior entry level Microcontroller for Cortex M seriesof Microcontrollersand also an ideal replacement for 8051 Microcontrollers. We have also ported FreeRTOS for these Trainers so that a development environment based on a RTOS would be an added advantage for the advancelevel training of students.

Instead of 8051, the Colleges/Institutes can introduce this new RP2040 Processorin their curriculumand the students can study Cortex M0+ and Dual Core Programming. As Industries,presently,are encounteringmore and more Multicore Embedded Microcontrollerin theirprojects, studying RP2040 Architecture will makethe studentsIndustry ready.
The following Training Boards for RP2040 Embedded Controller will be ideal for offering Fundamental to Advanced Learning of RP2040 Dual Core Embedded Controller and its interfacing.

1. **RP2040 Development Kit: VSK-RP2040**
2. **RP2040 Dual Core Based PWM Controller**
3. **RP2040 Based 24 Channel Logic Analyzer**
4. **RP2040 Based Carrier Board**
5. **RP2040 Based Tiny Pico 4ML Board**
6. **Arduino Nano 33 BLE sense-based ML board**

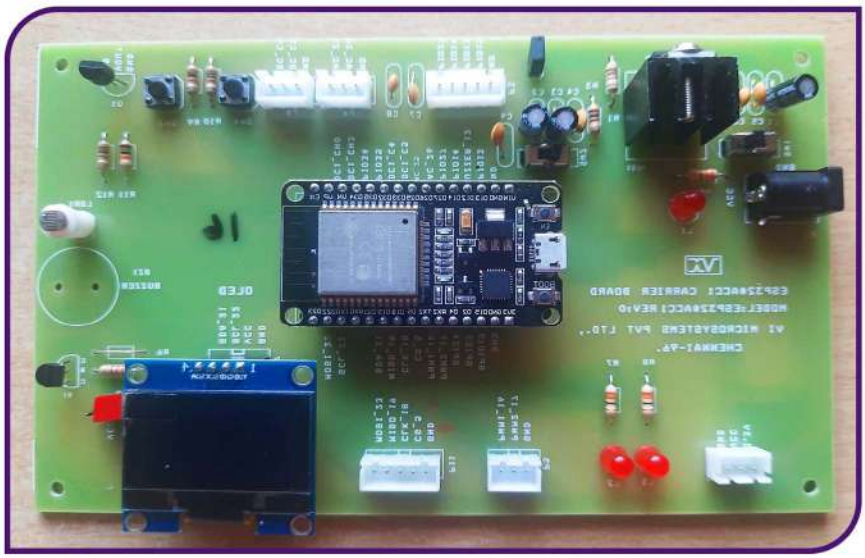
We hope this information would help you in setting up your next Gen Embedded Controller Lab and We wish this information will be of great interest to you.

EMBEDDED BOARDS

8. ESP 32 Carrier Board

ESP32 Development board is based on the ESP WROOM32 WIFI + BLE Module.It's a low-footprint, minimal system development board powered by the latest ESP-WROOM-32 module and can be easily inserted into a solderless breadboard.

It contains the entire basic support circuitry for the ESP-WROOM-32, including the USB-UART bridge, reset- and boot-mode buttons, LDO regulator and a micro-USB connector. Every important GPIO is available to the developer.



Carrier Board Features

- LM 35 sensor 1 no
- LDR sensor 1 no
- two nos of LED LED
- Two nos of Micro switch
- Buzzer 1 no
- I2C Based OLED 1 no
- Two nos of PWM termination connector
- one no of SPI Termination Connector r
- Four nos of GPIO Termination connector
- Two nos of DAC Termination connector
- Two nos of ADC Termination connector

9. LPC 2148 Evaluation Board (Vi-2148SB)

Pre-Loaded
µC/OS-III
The Real-Time Kernel
Free For Educational Institutions

ON-CHIP FEATURES

- CPU - LPC2148.
- Core - 16/32 Bit ARM7TDMI-S.
- Speed - Max 60 MHZ.
- Flash - 512KB.
- RAM (on-chip) - 40KB.
- 46 x General Purpose I/O Pins.
- USB2.0 Full speed Compliant Device.
- One 10bit ADC with 14 Analog inputs.
- One 10bit D/A Converter.
- Two 32bit Timers/ External Event Counters.
- Low Power Real Time Clock.
- Six PWM & Watchdog.
- Two UARTS (16c550).
- Two Fast I²C (400Kb/s) Module.

ON-BOARD FEATURES

- Eight Digital outputs.
- Eight Digital Inputs.
- 4x4 matrix Keybad.
- 16x2 Character LCD Interface.
- 128x64 Graphical LCD Interface.
- I²C Interface.
  - RTC.
  - EEPROM
  - 6 Digit Sevensegment.
- RS232 signals are terminated at 9 pin D- type connector.
- Buzzer Interface.
- Relay Interface.
- Stepper Motor driver is provided.
- On Board temperature sensor Interface.
- One Analog Trimpot.
- USB to serial converter for PC interface.

DEVELOPMENT TOOL

- IAR Embedded Workbench for ARM
  - IAR C/C++ Compiler
  - IAR Assembler
  - IAR XLINK Linker
  - IAR Library Builder and the IAR Librarian
  - A powerful editor
  - A project manager
  - A command line build utility
  - IAR C-SPY® debugger

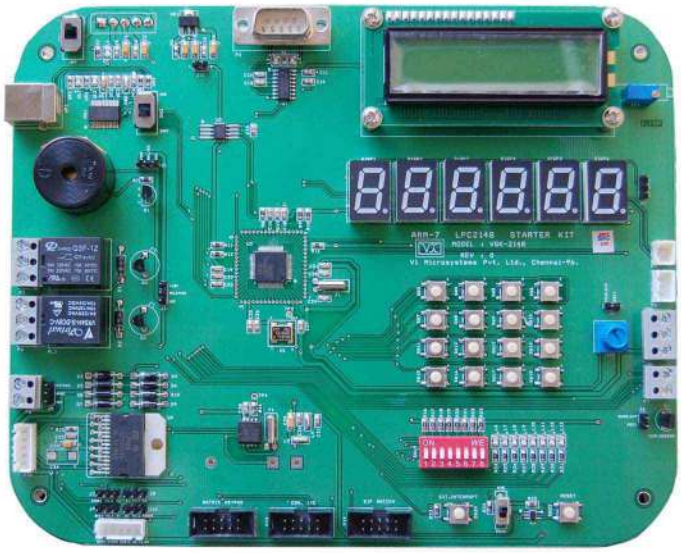
KIT INCLUDES ...

- µC-OSII & µC-OSIII source code.
- USB cable.
- IAR/KEIL Evaluation Software.
- Example code CD ROM.
- Manual.

µC/OS III

- Semaphores.
- Event Flags.
- Mutual Exclusion Semaphores (to reduce priority inversions).
- Message Mailboxes.
- Message Queues.
- Task Management (Create, Delete, Change Priority,Suspend/Resume etc.).
- Fixed Sized Memory Block management.
- Time Management.
- Timer Management.
- Preemptive Multitasking: Runs the most important task that is ready.
- Unlimited tasks, priorities, kernel objects.
- Round-Robin Scheduling.
- Near Zero Interrupt Disable Time.

10. LPC2148 DEVELOPMENT KIT (VSK-2148)



Pre-Loaded
µC/OS-II
The Real-Time Kernel
Free For Educational Institutions

µC/OS III

- Semaphores.
- Event Flags.
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- Near Zero Interrupt Disable Time.

ON-CHIP FEATURES

- CPU - LPC2148.
- Core - 16/32 bit ARM7TDMI-S.
- Speed - Max 60 MHZ.
- Flash - 512KB.
- RAM (on-chip) - 40KB.
- 46 General Purpose I/O Pins.
- USB2.0 Full Speed Compliant Device.
- One 10bit A/D Converter with 14 Analog inputs.
- One 10bit D/A Converter.
- Two 32bit Timers/ External Event Counters.
- Low Power Real Time Clock.
- Six PWM & Watchdog.
- Two UARTS (16c550).
- Two Fast I^2C (400Kb/s).
- Two SPI's.

ON-BOARD FEATURES

- Two Digital output.
- Two Digital input.
- 10 base T Ethernet Interface.
- USB 2.0 Connectivity.
- SD Card Interface.
- 16 x 2 character LCD Interface.
- 2 Analog Inputs are Terminated at Potentiometer.
- RS232 lines are terminated at 9 pin D-type connector.
- CPU lines are terminated at 20 pin connector.

DEVELOPMENT TOOL

- IAR Embedded Workbench for ARM
  - IAR C/C++ Compiler
  - IAR Assembler
  - IAR XLINK Linker
  - IAR Library Builder and the IAR Librarian
  - A powerful editor
  - A project manager
  - A command line build utility
  - IAR C-SPY® debugger

KIT INCLUDES ...

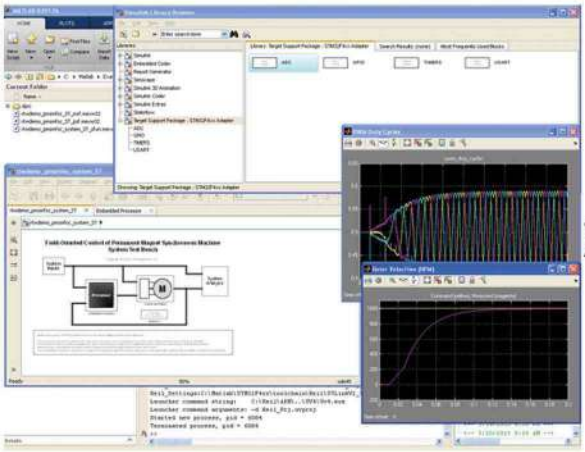
- µC-OSII & µC-OSIII source code.
- RS232 cable.
- IAR Evaluation Software.
- Example code CD ROM.
- Manual.

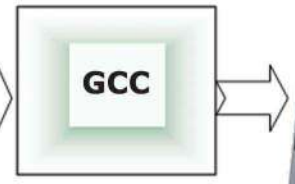
11 . STM32F407 Based Development Board (Vi-STM32SB)

Cortex M4 is an ideal replacement solution for the traditional Microcontroller & DSP Processors. Vi-S32 based on ST Microelectronics cortex M4 processor offers many features for Embedded Real Time world. The full range of hardware features on the board is provided to help you to evaluate and develop many applications. STM32 Embedded target enables systems and software Engineers to quickly deploy their application models in Matlab & Simulink to Cortex M4 ARM.

STM32 Embedded Target for Matlab & Simulink

* Optimized code generation for ARM Cortex M Core in STM32
* Peripheral driver blocks for STM32F4 devices, including A/D, GPIO, USART and timers etc.,
* Automated software and processor in the loop (SIL, PIL)
* IAR EWARM, Atolic True studio, Keil MDK – ARM and testing GNU compiler tool chains support.





For ECE

Specifications:

* STM32F407VGT6 microcontroller high performance 32bit ARM Cortex M4.
* Operating upto 168MHz
* 196Kbytes of SRAM
* 2.4 MSPS Analog to Digital Converter
* Two Nos. of Potentiometer interface for ADC input.
* Two Nos. of DAC with simultaneous conversion
* 1MB On-Chip Flash.
* 4 Nos. of User LEDs, Relay Interface.
* 8 way dipswitch for user input
* I²C Based 2 digit 7 Segment display interface.
* 4 keys keypad, Stepper Motor driver interface.
* USB OTG FS with micro AB connector interface.
* RTC with battery backup
* I2C EEPROM device interface
* SPI based temperature sensor interface
* 1 Gbyte Micro SD Card interface
* RS232 UART interface at a pin 'D' connector/USB connector
* CAN 2.0 lines are terminated at 9 pin 'D' female connector
* 3.2" 240 x 320 TFT color LCD with Touch Screen
* 10/100Mbps Ethernet interface
* Extension header for I²C, SPI & CAN
* Camera Interface

For Embedded RTOS Lab

Programming Tools & RTOS

* Model based Matlab Design
* Eclipse IDE
* µC/OS III
* Free RTOS
* Free RTOS Lab (TCP/IP Stack, IOT etc.,)