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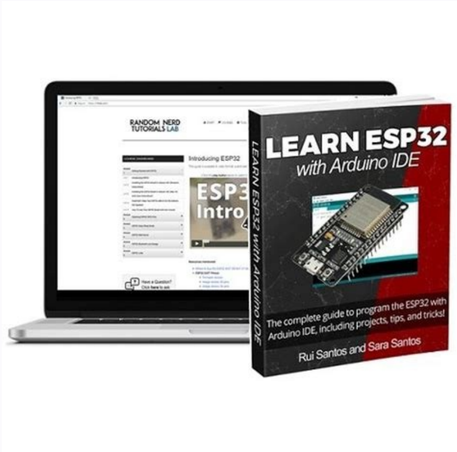

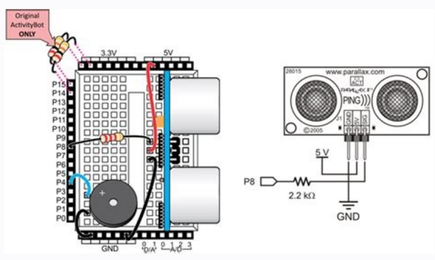

There is some real time clock functionality as part of the RTC subsystem, but there's also a lot of other stuff. Video Pocket 32 ESP-WROOM-32 SiLabsCP2102 X-32 ESP-32S orESP-WROOM-32 SiLabsCP2102 Compact, small development board/module with USB-to-UART, LDO regulator, and EN & Boot buttons. ESP32_BadAppleBad: SSD1306 OLED & RLE video data (Lutz Lisseck) Bad Apple video by Touhou on ESP32 with SSD1306 OLED; uses the Heatshrink compression library to decompress the RLE encoded video data. Size: 38 mm × 40.6 mm(Excluding the protruding antenna of the module.) Documentation: Manual Seller: Eleshop.jp (Kyoritsu) Lily GO ESP-WROOM-32 Breadboard Kit Clone of Indoor Corgi Elec.'s E32-BreadPlus. The LIFX Mini Day & Dusk features adjustable whites and "day & dusk" automation. For small quantities, Espressif will likely direct you to an appropriate distributor to contact. The ESP32-LyraTD-MSC Audio-Mic HDK (hardware development kit) combines the ESP32-LyraTD-MSC ("audio-mic development board") with a secondary "top" board. AE1 (ceramic antenna) & UFL1 (U.FL connector for external antenna) are for ESP32 wireless connectivity. DFRobot ESP-WROOM-32 Clone of Espressif's ESP-WROOM-32 module. Grid Connect $3.25 Minimum order qty 10. TTGO LoRa32 U.FL for LoRa ? Note that the pSRAM column refers to inclusion of additional on-board pseudostatic RAM; this figure does not include the SRAM within the ESP32 chip itself. Regular price is $5.03 each ($25.15 for five). lipoyang GPduino-T Morecat Lab WiFi-BareBoard32 WiFi-BB32 Morgan Allen LoRaNeT32 OHC2017 IoTuz Project board created for the 2017 Open Hardware Conference, a mini-conference during Linux.conf.au 2017. ALB32-WROVER Includes 4 MiB of pSRAM. AE2 (ceramic antenna) and UFL2 (U.FL connector for external antenna) are for the LoRa WAN transceiver. History: 2017 Mar 13: Renderings, photo, and video Availability: Unreleased; under development Kilobyte Benjamin Marty,a.k.a. Berkutta Tiny ESP32 Board ESP32 tiny module ESP-WROOM-32 SiLabsCP2102 Tiny ESP32 board with optional battery header and BME280. ESP-IDF Example Project Library Forum Post Temperature/Humidity Sensors Cameras LEDs Robotics Mini WiFi/BLE 4WD robot platform (Code, Summary Info) Gaming Wi-Fi Bluetooth BTstack Port for the Espressif ESP32 Platform Audio CAN Driver (Thomas Barth) Displays & Graphics DAC-Cosine (Krzysztof) API to operate cosine waveform generator inside ESP32. Versions/revisions: Rev. Pinout: top & bottom History: #ESPectro32 on Twitter Related: ESPectro32 + ALORA Ver. If you are a distributor or otherwise interested in ordering a large quantity of parts, the minimum order quantities for parts direct from Espressif are listed in the Espressif Products Ordering Information document. Does not appear to be sold separately. Small & Medium Development Boards/Modules (Not Using PCB Module) These small and medium sized development boards have USB-to-UART interfaces, but the ESP32 chip is directly incorporated into the board (instead of using a ESP32-based surface-mount module). 2: Uses CP2102 USB⇔UART; has enable/disable jumper for LiPo charger. Dual Core on Arduino IDE including data passing and task synchronization Enhanced Nextion HMI tutorial including ESP32, ESP8266, and Arduino support Arduino guide to infrared (IR) communication ESP32 and ESP8266 point-to-point (ESP-Now) and comparison with LoRa BLE with Arduino IDE (part 1) BLE with Arduino IDE (part 2) BLE human presence detector (Arduino IDE) USB cable testing; esp. Ai-Thinker ESP-32S 0 MiB Description: ESP-32S was a remake/clone of Espressif's ESP-WROOM-32 module. Solder mask color: Black Board identifier label (verbatim): ESP32_Core_board_V2 ESP32-DevKitC V4 ESP-WROOM-32or ESP32-WROVER SiLabsCP2102N Adafruit HUZZAH32 ESP32 Feather Board ESP-WROOM-32 SiLabsCP2104 Ai-Thinker NodeMCU-32S ESP-32S SiLabsCP2102 AnalogLamb ESP32 Development Board ESP-32S-ALBor ALB-WROOM SiLabsCP2102 Development board appears similar to ESP32-DevKitC. Elecrow$5.90 Electrodragon$3.50 Geekworm on DealExtreme $6.11 $6.54 regular price. Espressif ESP Test Board V3 A test board used internally by Espressif with SMA connector, 8-digit toggle switch, 5 V power jack, and various headers. Features an xBee socket with switchable VCC voltage (3.3 V or 5 V), so 2G (SIM800) and 3G (SIM5360) xBee modules will work on it to provide cellular network access. Micro-B USB connector and CP2102 USB-to-UART bridge provides a serial programming interface that also provides power supply for the board. Features include 4×DIO / 2×AI, 1× Serial Port RS-232/485, OLED 0.96″ 128×64 (optional), battery power support, and U.FL (I-PEX) antenna mount(s). ESP32.net is independently operated and not affiliated with Espressif Systems. Minimum order quantity direct from Espressif is listed at 550 pieces. Prices listed in the table above were last updated on 2017 Oct 8. G01 4 MiB OEM module version of the GPy. Supports Cellular LTE-CAT M1/NB1, Wi-Fi and Bluetooth. ESP32-WROOM-32D previously ESP-WROOM-32D 0 MiB Revision of the ESP-WROOM-32 module which uses an ESP32-D0WD chip instead of an ESP32-D0WDQ6 chip. ESP32-LyraTD-MSC will be the first ESP32-Lyra board approved for public release. Guoyun Technology 果云科技; a.k.a. Goouuu Tech ESP-32F (speculative) 0 MiB Clone/remake of Espressif ESP-WROOM-32 module. Fluo Technology FluoWiFi Arduino-style development board with Atmel ATmega644P 8-bit AVR micro-controller running at 16 MHz at its core. Incorporates ESP32 using their own LCM3 series module. QFN Packaged Chips The ESP32 SoC (system on a chip) is housed in surface-mount, Quad-Flat No-leads (QFN) packages in either 6×6 mm² or 5×5 mm² sizes with 48+1 connection pads (48 pads along the sides and one large thermal pad connected to ground on the bottom). Minimum order quantity direct from Espressif is listed at 650 pieces. Each module is a small printed circuit board upon which chips and other components are soldered and treated as an inseparable assembly to be integrated onto another PCB. Pinout from top & from bottom Repository (for all Heltec WIFI kits) Availability: purchasable through AliExpress. HackerBoxes Conference Badge PCB The HackerBoxes Conference Badge PCB is part of the HackerBox #0020 Summer Camp kit. DOIT/SmartArduino ESP32 DevKit ESP-WROOM-32 SiLabsCP2102 Dongsen TechnologyTravis Lin D-duino-32 V1–V2.5 ESP-WROOM-32 SiLabsCP2102 Development board with ESP-32S module, 0.96″ OLED, and programming buttons. Identifier Seller Price per Chip Seller Notes ESP32-D0WDQ6 AnalogLamb $3.00 Electrodragon $2.40 Select model from "Choose an option" pop-up menu on seller's page. ESP32-D0WD AnalogLamb $3.70 Electrodragon $2.40 Select model from "Choose an option" pop-up menu on seller's page. Size: 51 mm × 25 mm Pins: 38 Seeed Studio ESP32 Breakout Kit ESP32 Extension Board Breakout board for Ai-Thinker ESP-32S module. Data-write is supported on the SRAM. FCC ID: 2AA53-LCM3 Pycom W01 4 MiB L01 4 MiB L04 4 MiB OEM module version of the LoPy4. Up to 8 MiB of external flash/SRAM memory are mapped onto the CPU data space, supporting 8-bit, 16-bit and 32-bit access. (Note: search query results include LoRa boards too.) WIFI LoRa 32 ? Microwavemont ESP32-PICO Motherboard from SiP module SiLabsCP2102N Development board that uses the ESP32-PICO-D4 SiP, has a Micro-USB connector, LiPo battery connector and charger circuit, USB to UART bridge, and LED for blink test. There have been several different ESP32-Lyra boards developed internally — varying in physical form and technical specifications. Grid Connect $2.75 Minimum order qty 10. Getting started guide Schematic V2 fixed the auto-reset issue seen in V1. A fun development board with Micro-USB connector, LiPo battery JST connector, on/off switch, USB-to-UART bridge, 7×7 LED matrix (controlled by charlieplexing method using IS31FL3731), Neopixel LED (IO27), LED (IO15), power LED, reset & flash button, large silicone buttons with capacitive touch areas immediately above, microSD card slot, gesture & light sensor photo transistor (KDT00030TR), I²S breakout connector, I²C Grove connector, GPIO Grove connector, 2×20 pin header breakout, five alligator-clip friendly pads, I²C 2.54 mm connection for extended OLED 128×64 pixel display, and more. ESP-WROOM-32 module used in the stand-alone "MATRIX Voice Wi-Fi/BT/MC" edition. Specifically, LCM3T is seen used in the "Internal Photos" exhibit attachment for FCC ID 2AA53-MINI. Pinout Repository (for all Heltec WIFI kits) Availability: purchasable through AliExpress. (In contrast to the MATRIX Voice base-model, which is intended to be coupled with a Raspberry Pi.) Renesas GR-LYCHEE RETO ROBOT Emme Stephen Heppell Learnometer Project purpose: Monitor your classroom environment for factors that hinder learning. Clone of Heltec Automation's WIFI LoRa 32 board. Sold with Guoyun Technology's ESP-32F module, which is a clone of the ESP-WROOM-32. Sample code History: 2017 Oct 18: Video 2017 Oct 23: Submitted and posted to Tindie Pesky Products Kris "onehorse" Winer ESP32 Development Board N25Q032A FTDIFT230XQ Other notable components: MAX1555 LiPo battery charger, 3.3 V MIC5528 LDO supplying 500 mA Gerber files available on OSH Park Antenna connection: Plated through-hole at end of antenna trace for soldering on an antenna. SiLabsCP2102 ESP32 development board with OLED display and battery connector. Ai-Thinker ESP-32S FCC ID 2AHMR-ESP32S. Size: 19.2 mm × 18 mm × 3.2 mm Datasheet If the model name seems rather odd to you, you're not alone. A: Schematic Rev. Processor frequency simply listed at 160 MHz, which differs from the dual core modules' adjustable clock frequency range of 80 MHz to 240 MHz. ESP32-WROVER 4 MiB ESP32 based surface-mount PCB module with 4 MiB pSRAM. For the most part, this means you'll see binary prefixes — e.g., kibi (Ki) and mebi (Mi) — used for memory capacities and data sizes. Datasheet Photos: Size comparison to €1 coin Internals photo Known manufacture dates: Lot NumberYearWeek TJAGAPOP95201728th Pins GPIO16, GPIO17, SD_CMD, SD_CLK, SD_DATA_0 and SD_DATA_1 are used for connecting the embedded flash, and are not recommended for other uses. ⚠ Announced on 2017 Sept 1, although its existence was publicly known before. Streaming video can be watched through remote device, such as a PC or smartphone. Pycom WiPy 2.0 (FCC ID 2AJMTWIPY2R), Pycom LoPy (FCC ID 2AJMTLOPY1R), and Pycom SiPy (FCC ID 2AJMTSIPY1) development boards/modules have received FCC IDs. Development boards that employ surface-mount modules with FCC IDs (such as the Espressif ESP-WROOM-32, Espressif ESP32-WROVER, or Ai-Thinker ESP-32S module) will have that module component certified. Footprint compatible with Espressif ESP-WROOM-32 module. LIFXLifi Labs LIFX Mini LIFX Mini is a product family of remotely controllable, Wi-Fi enabled, LED based lights. Compact ESP32 based development board with battery connector, and the typical development board component accoutrements. Tronixlabs AustraliaAU$7.95 Includes GST. Maker Model Flash Memory pSRAM Antenna EM Shield Notes Espressif ESP-WROOM-32 0 MiB Initial production release (non-beta) module board created by Espressif. Schematic Aitendo IoT Express ESP-WROOM-32 from module FTDIFT234XD Sold as DIY assembly parts kits: IEPK-F01, IEPK-S02, and IEPK-S01. Footprint: Unique and differs from all other manufactured modules. For news and information, follow @ESP32net on Twitter! Features & Specifications See the ESP32 Datasheet for information on ESP32 chips and the ESP32-PICO-D4 Datasheet for information on the SiP module. In contrast to compact surface-mount modules, development boards break out connections to be larger and more "human scale" for easier prototyping and development and frequently include additional circuity and interfaces for power supply and programming. (1.25″ copper wire can be used for the antenna.) Pycom WiPy 2.0 and 3.0 versions (None) LoPy (None) Triple network board with Wi-Fi, BLE, and LoRa. FCC ID: 2AJMTLOPY1R Documentation (datasheet, pinout) Do not connect anything to pins P5, P6 and P7, since these pins are used by the SPI bus that controls the LoRa radio. ALB32-WROVER 4 MiB and 16 MiB variations planned 4 MiB Footprint same as ESP-WROOM-32. Electrodragon $4.00or $4.05 Select configuration (PCB trace or with U.FL/I-PEX antenna) from "Choose an option pop-up menu on seller's page. RTC fast SRAM: 8 KiB For data storage and main CPU during RTC Boot from the deep-sleep mode. Second voltage regulator for power on / power off sensors through a dedicated GPIO. Seen listed under ambiguous names such as "LoLin ESP32 WeMos". For international shopping, intermediary agents are often used (for a fee, of course). Has connections available to solder on two Grove connectors. Lacks USB-to-UART; only a direct UART connection is provided. For most questions, it's probably best to submit a post in the forums for widest community visibility and easily writing out the nitty-gritty details of your situational context — for example, including example code and detailing the relevant configuration of your software, firmware, and hardware. Identifier Processor Cores EmbeddedFlash Mem. Guoyun Technology 果云科技; a.k.a. Goouuu Tech ESP32F Breakout Board Buttoned breakout board with with "BOOT" and "RST" buttons, an LED, six resistors, and a capacitor. Guoyun on Taobao ¥27.00 ITEAD PSH-C32 ⚠ On-board flash chip is unusually small (1 MiB), and this may be extremely limiting. Available with breakout board (€8.45). (1313) SRRC CMIIT ID: 2017DP3657 ESP32-WROVER-I 4 MiB (MIFA disabled) ESP32-ZERO from SiP module 0 MiB Availability: Unreleased ESP32-ZERO V2 is a compact surface-mount PCB module which incorporates an ESP32-PICO series system-in-package (SiP) QFN module with a 3D antenna. Successor/replacement: In lieu of ESP-32S, Ai-Thinker presently sells Espressif ESP-WROOM-32 modules manufactured by Ai-Thinker. Schematic Repository Ayarafun/LamLoei Node32S ESP-WROOM-32 FTDIFT231XS Baoshi JESP32 ESP-WROOM-32or ESP32-WROVER FTDIFT2232HL CambrianRobotics Yuki Sato, Kohei Kido, Sho Suzuki Obniz ESP-WROOM-32 ? Uses ESP32-PICO-D4 SiP module. Sigfox maximum Tx power variations: 14 dBmW ← RCZ1 & RCZ3 (Europe, Oman, South Africa; Japan) 22 dBmW ← RCZ2 & RCZ4 (United States, Mexico, Brazil; Australia, New Zealand, Singapore, Taiwan, Hong Kong, Colombia, Argentina) FCC ID: 2AJMTSIPY1 Documentation (datasheet, pinout) Do not connect anything to pins P5, P6 and P7, since these pins are used by the SPI bus that controls the Sigfox radio. Long delivery time for this item. ESP32 based compact surface-mount PCB module with PCB trace meandered inverted-F antenna. Once programming is done, the lower-deck board can be removed. Also includes "EN" & "Boot" (IO0) buttons and 1117 LDO. Module options: This board is sold with either the IntoRobot W32 or W33 module. Pycom€19.95 Minimum order qty 10.€15.95 each for qty 100. ABRA$8.49 eBox/Widora ESP32-Bit Module has a built-in ceramic antenna and U.FL connector. Schematic Hackaday.io project ESP32 WROVER Mini ESP32-WROVER SiLabsCP2104 Compact development board designed around the ESP32-WROVER module. Created by Espressif Systems, ESP32 is a low-cost, low-power system on a chip (SoC) series with Wi-Fi & dual-mode Bluetooth capabilities! The ESP32 family includes the chips ESP32-D0WDQ6 (and ESP32-D0WD), ESP32-D2WD, ESP32-S0WD, and the system in package (SiP) ESP32-PICO-D4. Seeed Studio $2.25 $4.50 regular price. FCC ID: 2AA53-LCM3 LCM3C ? Maker Model Flash Memory Antenna EM Shield USB⇔UART Notes Espressif ESP32-PICO-KIT V4 from SiP module SiLabsCP2102 ESP32-PICO-KIT V4 is a development board based around the ESP32-PICO-D4 SiP QFN module with a relatively slim form factor and single-row headers on opposing edges, lending to breadboard friendliness. Purchasing: Freematics, Freematics on Tindie John Spencer & Angus Gratton ESPlantV2.0 ESP-WROOM-32or ESP-32S from module SiLabsCP2102 Keri's Lab KERISP32 ESP-WROOM-32(or compatible) from module FTDIFT232RL Makestro/DycodeX ESPectro32 ESP-WROOM-32 from module ? Supports Wi-Fi, Bluetooth, LoRa, and Sigfox. "Upper layer" main development board contains ESP32-PICO-D4 SiP, battery connector & charger circuit with LiPo charge status LEDs, Reset & pull-up IO0 buttons, and a green LED on GPIO4. These pins should be treated as NC. Has dual-row connections along the longest sides, making this board incompatible for breadboard use. Note about Taobao: Taobao is a Chinese marketplace. GPIO broken out: GPIO36 (SVP), GPIO39 (SVN), GPIO34, GPIO35, GPIO25, GPIO26, GPIO14, GPIO12, GPIO22 (I²C SCL), GPIO21 (I²C SDA) Geekworm Easy Kit ESP32-B1 ESP-WROOM-32 WCHCH340C Development board with red solder mask. Physical package footprint/dimensions can be found in chapter 6 of the ESP32 Datasheet. Size: 25.5 mm × 18 mm × 3.1 mm Datasheet ESP32-WROOM-32U 0 MiB Compatible with the electrical connection footprint of the Espressif ESP-WROOM-32 module. Pins: 38 Kyoritsu Electronics Industry KP-ESP32X Breakout board for ESP-WROOM-32 module with "skinny long neck" form factor for easy breadboard use. The product listing for P-ESP32C currently uses photos of the P-ESP32B board with a green solder mask. Note to the beginner: If you are just getting started and don't know what to purchase, it would probably be best for you to purchase a development board (instead of an surface-mount module) for easier hardware setup and an better first time experience. Contact Espressif sales for distributors. For those seeking integration/inclusion of ESP32, using an surface-mount module board with ESP32 inside is often more desirable, since such modules combine an ESP32 chip, 40 MHz crystal (clock), flash memory chip, and appropriate "glue" components into a ready-to-use, compact assembly. Label on the underside reads "GOOUUU-ESP32". (Videos not using ESP32 have been omitted; see uploads playlist for all Simba & Pumbaa videos.) First Impressions with ESP32 Units Miscellaneous Discussions Development Development software, tools, environments, languages, platforms, frameworks, libraries, code, and other resources: ESP-IDF (Espressif IoT Development Framework) Other Espressif Projects Arduino (C++) Arduino Core for the ESP32 Simba Embedded Programming Platform See also: Pumbaa (MicroPython on Simba) Zephyr ProjectA scalable real-time operating system (RTOS) supporting multiple hardware architectures, optimized for resource constrained devices, and built with security in mind. Footprint: Compatible with ESP-WROOM-32 & ESP-32S. 1: Used FT231XS USB⇔UART. LDO: TS1117CW-3.3V Switch Science ESPr Developer 32 ESP-WROOM-32 FTDIFT231XS ThaiEasyElec ESPino32 ESP-WROOM-32 SiLabsCP210x thingTronics WiTooth ESP-WROOM-32 SiLabsCP2102 Development board with USB-A plug for easily plugging the board into a computer for programming or directly into a typical USB power adapter — no cable required. The daughterboards have touch electrodes in different combinations or shapes, such as linear slider, wheel slider, matrix buttons and spring buttons, depending on the application scenarios. Branding on bottom reads "ESP32F" and has a wireless cloud logo. Has column-similar/redundant dual-row connections along the longest sides for easier stand-alone use without a breadboard (but still could be used with a breadboard). Package footprint/dimensions can be found in the ESP32-PICO-D4 Datasheet. United Technologies WB_MODE_V1 25Q32A 0 MiB Appears to be a clone of the ESP-32S module. The LIFX Mini Color (often simply called the LIFX Mini) features multi-color adjustment, adjustable whites, and "day & dusk" automation. pSRAM: 4 MiB Documentation (pinout, datasheet, drawings) See also: OEM Reference Board for Pycom modules. Datasheet Photo: Size comparison to €1 coin Known manufacture dates: Silicon Rev.Wafer Lot NumberYearWeek 0P6W255201647th QFN Packaged Module ESP32-PICO-D4 SiP (system in package) module is housed in a 7×7 mm² Quad-Flat No-leads (QFN) package with 48+1 connection pads (48 pads along the sides and one large thermal pad connected to ground on the bottom). Kilobyte on Tindie$4.99Ships from Switzerland. Clock frequency: up to 240 MHz Performance: up to 600 DMIPS Ultra low power co-processor: allows you to do ADC conversions, computation, and level thresholds while in deep sleep. Audio Spectrum Visualization 8-octave for SH1106 OLED (G6EJD; video) 8-octave for ILI9341 (Tobozo) Development Tools and Environments PCB Design Resources Hardware Hardware listed below includes the Quad-Flat No-Leads (QFN) packaged ESP32 chips and system-in-package module, various surface-mount printed circuit board modules, a large variety of development boards, and industrial, commercial, and general consumer devices. Code execution is supported. Prices listed in the table above were last updated on 2017 Dec 8. Upcoming module which will use the single core ESP32-S0WD chip. ESP32-WROVER is configured to use the MIFA PCB antenna. You can also find sellers in venues like eBay and AliExpress using search queries with "ESP32" and "QFN", "SMT", "SMD", "package", "bare" or "raw"; also using the full identifier (such as "ESP32-D0WDQ6" or "ESP32-D2WD") in search queries may prove fruitful. (Does not include a U.FL connector.) Size: 31.4 mm × 18 mm × 3.5 mm Datasheet User guide Pinout Footprint differs from ESP-WROOM-32 in the placement of pads 15–24.Espressif ESP-WROVER-KIT, Espressif ESP32-LyraT, and Baoshi's JESP32 Nano boards have solder pads that accept the ESP32-WROVER footprint. Watterott €4.24 Includes 19% VAT. Wiki article Seller: WEMOS CC Store on AliExpress "WeMos" / Lily GO (not WEMOS.cc group) Pro ESP32 FTDIFT231XS Clone of the SparkFun ESP32 Thing board. GNDTeknik ESP32 Breakout Kit ESP-WROOM-32 SiLabsCP2104 Development board/module with ESP-WROOM-32 module, USB-to-UART, Reset & Boot (IO0) buttons, Li-ion battery connector & charger, two Grove connectors, LED on IO2, and three indicator LEDs. Headers are 0.1″ spaced for breadboard compatibility. Datasheet Moduino X2 ESP32-WROVER based industrial IoT module. (No solder pads for the eBox/Widora ESP32-Bit module.) Pinout Module: Not includedHas pads for ESP-WROOM-32/ESP-32S module footprint. Peripheral input/output: Rich peripheral interface with DMA that includes capacitive touch, ADCs (analog-to-digital converter), DACs (digital-to-analog converter), I²C (Inter-Integrated Circuit), UART (universal asynchronous receiver/transmitter), CAN 2.0 (Controller Area Network), SPI (Serial Peripheral Interface), I²S (Integrated Inter-IC Sound), RMII (Reduced Media-Independent Interface), PWM (pulse width modulation), and more. The primary "upper-deck" board contains the ESP32-PICO-D4, camera, and display. Antennas: ESP32 Wi-Fi & Bluetooth uses the MIFA PCB trace and SX1278 LoRa uses an external antenna via the U.FL connector. B only), and three

mount holes. Preliminary ESP32 port Supported Xtensa boards Mongoose OS NuttX RTOS MicroPython Hybrid C/Python Zerynth "Zerynth Introduces Python on ESP32" (2017 Sept 30) Lua JavaScript mruby (Carson McDonald & Yamamoto Masaya) Forth CForth Discussion on ForthHub BASIC TinyBasic (See also: BASIC in ESP32 textcast demonstration.) Other Code & Libraries ESP32-OTA-HTTPS: Secure Over-The-Air Updates (Article) Lightweight HTTP client for ESP32. Available without OLED too. IntoRobot W32 0 MiB W33 0 MiB ITEAD PSH-C32IM160913001 PN25F08 0 MiB Wiki article Schematic Compared to other modules, 1 MiB is an unusually small flash memory capacity. ⚠ Footprint: Unique and differs from all other manufactured modules. Because these wireless communication module boards are designed for incorporation into final products (unlike development boards), they lack development components which are unnecessary or undesirable in final products — e.g., typically no USB-to-UART nor programming/reset buttons — minimizing both cost and physical size. The LIFX Mini White has a warm white 2700 K color temperature. Notably, it uses a planar inverted-F antenna (shaped metal) for Wi-Fi. U.FL connector is for the LoRA antenna. Basic Breakout Boards Basic breakout boards (for modules) without any programming buttons and often without any other components (but some have capacitors); breaking out the surface-mount module's tightly-spaced castellated edge connections into wider-spaced connections for headers. Pycom€10.45 Minimum order qty 10.€8.65 each for qty 100. Code: ESP32 OLED WebRadio Seller: Microwavemont on Tindie ($26) ESP32-ADB-Edge ESP-WROOM-32 from module SiLabsCP2102 Board with MEMS Microphone (ICS-43434) and class-D amplifier embedded 1-channel DAC (Maxim MAX98357A); intended for Amazon Alexa experimentation and development. Eckstein €7.95 Includes 19% VAT. The board includes a Proant "3D antenna", Micro-USB socket, SiLabs CP2102 USB-to-UART bridge, "EN" and "BOOT" buttons, 3.3 V AMS1117 LDO (power supply), and a 5 V power indicator LED. This shield can be used with or without a HydraBus board. 550 or more. Note: Module soldered onto underside of board. Seen on Freematics ESPRIT development board. B: Schematic ESP32-GATEWAY ESP-WROOM-32 from module WCHCH340T ESP32-PRO (SoC directly incorporated.) MicrochipPIC32MX270 ProtoCentral Kalam32-Dev (SoC directly incorporated.) W25Q32 FTDIFT231X Development board with "Arduino Uno style" form factor, two capacitive touch switches, three WS2812B addressable RGB LEDs, and battery connector. Sellers: various vendors on AliExpress TTGO MINI D1 ESP32 MINI32 V1.0.0 ESP-WROOM-32 SiLabsCP210? History: 2017 Aug 19: Announcement 2017 Aug 20: Video ePaper plus ESP32-ADB ESP-WROOM-32 from module SiLabsCP2102N ESP32 Web Radio & BT Receiver with Class-D Amp ESP-WROOM-32 from module FTDIFT231XS ESP32 web radio and Bluetooth audio development board with I²S DAC (TI PCM5102A) and class-D amplifier (TI TPA3110). The motherboard contains a display unit, a main control unit and a debug unit. Not to be confused with P-ESP32D, which has buttons and a few other components. For use with modules of ESP-WROOM-32 compatible footprint. Repository Pictures: 2017 Feb 17: Rendering 2017 Mar 8: Bare board 2017 Mar 15: Finished board Versions: 1.0, 1.1 Availability: Unreleased; under development Watterott ESP-WROOM-32-Breakout ESP-WROOM-32 SiLabsCP2102N WEMOS LOLIN32 ESP-WROOM-32 SiLabsCP2104 LOLIN32 Pro ESP32-WROVER SiLabsCP2104 "WeMos" / Lily GO (not WEMOS.cc group) LoLin OLED or D-duino ESP-WROOM-32 SiLabsCP2102 WiFi&Bluetooth Battery ESP-WROOM-32 SiLabsCP2102 X-32 ESP-WROOM-32 SiLabsCP2102 Clone of Travis Lin's X-32. Out of Stock; estimated shipment 2017 Dec 19. FCC ID: 2AC7Z-ESP32PICOKIT Schematic Pinout N.b., V4 pinout differs from V3 pinout. ⚠ Getting started guide Electronic Sweet Peas ESP320 (tentative) SiLabsCP2104 Gravitech& MakerAsia Nano32 or FTDIFT231XQ Heltec Automation WIFI Kit 32 ? GPIO16, GPIO17, SD_CMD, SD_CLK, SD_DATA_0 and SD_DATA_1 are used for internally connecting the embedded flash, and are not recommended for other uses. ⚠ Datasheet Known manufacture dates: Silicon Rev.Wafer Lot NumberYearWeek 1PP3376201713th TUBIPP6198201727th ESP32-S0WD ESP32-S0WD is a variation with a single-core (instead of dual-core) processor. IntoRobot Fig W32 or W33 SiLabsCP2104 Development board with USB-to-UART, light sensor, battery interface, and more. Size: 76.2 mm × 25.4 mm(Excluding the protruding antenna of the module.) Pins: 38 Capacitors: C1: 10 µF, C2: 0.1 µF, C3: 0.1 µF Documentation: Manual Seller: Eleshop.jp (Kyoritsu) NOA Labs ESP-32S Module Adapter Breakout Board Simple breakout board compatible with ESP-WROOM-32 and ESP-32S footprint. Wi-Fi Certified interoperability certificate ID: WFA69503 History (including precursor boards): ESP-Sense Kit ESP-WROOM-32 from module (None)use with ESP-Prog The ESP32 touch sensor development kit, ESP32-Sense Kit, is used for evaluating and developing ESP32 touch sensor system. Wiring connections to these pins will cause incorrect behavior of the Sigfox radio. Pium Pium TECHBASE Moduino X1 ESP32-WROVER based industrial IoT module. Info: Videos: Presentations: Hardware kit preparation, IoTuz hardware design, manufacturing, working with KiCad, IoTuz software design challenges and ESP-IDF, ESP32 development example using IoTuz Brief demos: Touchscreen demo, short overview, full demo, hardware intro, controls, infrared, demos, BreakOut Tetris, IoTuz on ESP-WROVER-KIT Repositories: Hardware, Firmware, Drivers ProtoCentral HeartyPatch SHA2017 Badge Team SHA2017 Badge Kevin Webster BlazeTrak Koenraad Verheyden Cube A "3D" PCB with NeoPixel LEDs, 9-axis IMU (accelerometer & gyro), and battery power connector. SPI1 is connected to the same pins via an arbiter and is used to write to flash. ESP32 (ESP-IDF) Wi-Fi connect and resolve DNS Template for Connecting to the AWS IoT Platform Rudi's Standalone HTTP Server (Forum Post 1, 2; Video 1, 2) Pre-built ESP8266 & ESP32 Toolchains for NodeMCU Development & CI Use Neil Kolban's ESP32 Code Snippets FeelFreeLinux's ESP32 Repository Ring Log (Edmund Huber) An on-disk ring buffer for persistent, fixed-sized logs. Prices listed in the table above were last updated on 2017 Dec 11. Watterott €4.00 Includes 19% VAT. Some sellers are calling it the "MH-ET LIVE D1 mini", but MH-ET LIVE calls it the "ESP32 MiniKit". So, if you ask a question in the IRC channel, try to stick around, as it might take someone awhile to respond. 52Pi $9.99 Contact Espressif sales for distributors. ESP32 can access the external QSPI flash and SRAM through high-speed caches. Size: 78 mm × 26 mm Seller: Whitecat (€30) ESP32 N1 LORA (None) Whitecat N1 board with LoRa transceiver. TTGO LoRa U.FL for LoRa ? See Binary prefix, Orders of magnitude (data), Orders of magnitude (bit rate), and Data rate units on Wikipedia for more information. G6EJD's ESP32 Videos Connect and get I²C devices working Connect SPI devices and get them working Bosch BME680 environmental sensor: air quality, temperature, pressure, and humidity (code) Arduino IDE pin mapping: determining, changing, or adding definitions ADC and some of its more advanced functions Adding a new board definition to the Arduino IDE Digital to analog converter (code) Novelty X-mas and new year count down timer (code) How to connect and get I²C devices working (code) Audio spectrum analyser using FFT (code) 8-octave audio spectrum display (code) Real time Morse decoder (code) General purpose web server (code) Data logging web server (code) Hardware serial ports Over-the-air (OTA) updating (code) Sensor server & clients for DHT, SHT, BMP085, BMP180, DS18B20, etc. ESP32 based compact surface-mount PCB module with U.FL antenna connector. Video Board labeling of jumpers for "USB-powered" and "LiPo charged circuit enable" is reversed. ⚠ ESP32-ADB Audio Developing Board ESP-WROOM-32 from module SiLabsCP2102 ESP32 audio development board with PCM5102A I²S DAC, USB-to-UART, LiPo charger, and 1.3″ OLED display (SH1106 via I²C). for power supply BLE current draw LoRa boards: what you need to know before you buy; incl. Freematics repository Contains files for Freematics ESPRIT and other Freematics hardware. Up to 16 MiB of external flash are memory-mapped onto the CPU code space, supporting 8-bit, 16-bit and 32-bit access. Pins: 38 Akizuki Electric AE-ESP-WROOM-32 Breakout board for ESP-WROOM-32 module with "skinny long neck" form factor for easy breadboard use. ESP32-D2WD AnalogLamb $3.70 Electrodragon $3.30 Select model from "Choose an option" pop-up menu on seller's page. U.FL for LoRa SiLabsCP2102 ESP32 development board with 0.96 inch OLED display, battery connector, and LoRa (SX1278). Older version: SIP 3D ANT V3 Existing photos do not exhibit a shield, however, the board is designed to include an on-board EM shield. In addition to the sellers listed below, you can contact Espressif directly for chip purchase inquiries. Size: 48.01 mm × 26.42 mm Datasheet Documentation Seller: IntoRobot on Taobao iohippo ESP32 Dev Board ESP-WROOM-32 SiLabsCP2102N ESP32 development board with Li-Po connector & charger, Micro-USB connector, USB⇔UART, and boot/reset buttons. E32-BreadPlus A neat breakout board for ESP-WROOM-32/ESP-32S module breadboarding. ESP32-S0WD Electrodragon $2.00 Select model from "Choose an option" pop-up menu on seller's page. Repository Arduino & SiFive Arduino Cinque Arduino Cinque is based on SiFive's Freedom E310 — the industry's first commercially available RISC-V core — running at 320 MHz. An on-board ESP32 chip provides support for 2.4 GHz Wi-Fi and Bluetooth. B only), reset & user buttons, UEXT connector to attach different sensors & modules, 40 pin GPIO 0.1″ step connector, LiPo charger & step up converter allowing ESP32-EVB to run from LiPo battery, 5 V power barrel jack, CH340T USB-to-UART (Rev. (1313) MIC/TELEC cert. NINA-W132 0 MiB Part of the U-BloxNINA-W13 series (previously NINA-W1 series) of Wi-Fi modules. eFuse: 1 Kibit Of which 256 bits are used for the system (MAC address and chip configuration) and the remaining 768 bits are reserved for customer applications, including Flash-Encryption and Chip-ID. Adafruit$8.95 AnalogLamb $3.99or $4.99 $3.99 with ESP32 revision 0; $4.99 with ESP32 revision 1. AE1 (ceramic antenna) and UFL1 (U.FL connector for external antenna) are for ESP32 wireless connectivity. Typically this means connections are broken out with 0.1″ spaced headers (in contrast to the more tightly spaced connections seen on the compact surface-mount module boards). (code) Hints and tips (code) File downloads via HTTP with web interface File uploads via HTTP with web interface (code) Download, upload, delete, stream and directory services Adel Kassah's TUNIOT ESP32 Programming Videos Mongoose OS Videos See also: user guide tutorial videos playlist. Board label name reads "ESP32-WROVER & ALB32R Breakout". Size: 23 mm × 39 mm XiaoJ ESP32-Mini-Board ESP-WROOM-32 SiLabsCP2102 Sold by: Xiaoj的杂货铺 LDO: AMS1117 History: 2016 Aug 28: Prototype first seen Large Development, Specialty & Project Boards Maker Model Surface-Mount Module Flash Memory USB⇔UART Notes Espressif ESP-WROVER-KIT previously ESP32-DevKitJ ESP32-WROVER or ESP-WROOM-32 from module FTDIFT2232HL ESP32-LyraTD-MSC ESP32-WROVER from module SiLabsCP2102N ESP32-LyraTD-MSC (previously ESP32-LyraTD-MS1) is a circular board for audio playback & recording intended to be used in an "Alexa type" product. Industrial, Commercial, and General Consumer Devices Maker Model Notes DingTalk Alibaba M1 Eveia Eveia A smart pedal exercise machine with ESP32 based wireless connectivity. Smart Prototyping $7.90 $5.50 each for qty 50 or more. U.FL connector is for the LoRA antenna. 0 MiB U-Blox NINA-W131 0 MiB Part of the U-Blox NINA-W13 series (previously NINA-W1 series) of Wi-Fi modules. Not to be confused with the previously released P-ESP32, P-ESP32B, and P-ESP32C boards, which are merely basic breakout boards without buttons nor other components. Example of using libcurl with ESP32 (Forum Post) MQTT LibWebSockets Lightweight C library built to use minimal CPU and memory resources, providing fast throughput in both directions as client or server. Wiki article Photo by Hugatry Note: Unlike the official Espressif ESP-WROOM-32, this clone by DFRobot is not presently FCC certified. Schematic Indoor Corgi Elec. See also: Pycom expansion boards & shields LoPy4 (None) SiPy (None) Triple network board with Wi-Fi, BLE, and Sigfox. An especially nice "skinny long neck" form factor for breadboard use! Schematic Seller: Switch Science (¥680) KUC Architect ESP-WROOM-32 Breakout A-Type MK-PKBN-047 ESP-WROOM-32 Breakout B-Type MK-PKBN-048 ESP-WROOM-32 Breakout C-Type MK-PKBN-049 Kyoritsu Electronics Industry KP-ESP32C Buttoned breakout board for ESP-WROOM-32 footprint. L01 FCC ID 2AJMTLOPY01R. Rev. Two slightly different P-ESP32B boards have been seen in the wild: one with a green solder mask and thin 3.3 V trace, and another with yellow solder mask and thicker 3.3 V trace. Kickstarter Purchasing Disclaimer: Vendors are listed here for informational purposes only. Aubreey on Amazon $19.22 eBox on Taobao ¥40 Eckstein €12.50 Includes 19% VAT. Sellers: vendors on AliExpress HiGrow ESP-WROOM-32 from module SiLabsCP210? AliExpress Prices vary AnalogLamb ESP-32S-ALB & ALB-WROOM AnalogLamb $3.49or $4.69 $3.49 for 4 MiB ESP-32S-ALB; $4.69 for 16 MiB ALB-WROOM. ESP32-WROOM-32D Kilobyte $4.99 ESP32-WROVER FCC ID 2AC7Z-ESP32WROVER. Development board with microSD card slot. Pinout Size: 25 mm × 18 mm × 3 mm Black Electronics ESP32 Module Breakout Board Simple breakout board with reset and GPIO 0 switches. Included for free with the initial ESP-32S orders from Seeed Studio. Olimex ESP32-EVB ESP-WROOM-32 from module WCHCH340T (rev. Available with either 4 MiB flash (using ESP-32S-ALB module) or 16 MiB flash (using ALB-WROOM module). Those unfamiliar with Taobao should read Naomi Wu's "Source Parts on Taobao: an Insider's Guide" and Eric's "How to Buy Directly from Taobao" before attempting to make a purchase through the venue. USB bus power operation and Lipo battery operation are selectable by on-board jumper. At its heart, there's a dual-core or single-core Tensilica Xtensa LX6 microprocessor with a clock rate of up to 240 MHz. ESP32 is highly integrated with built-in antenna switches, RF balun, power amplifier, low-noise receive amplifier, filters, and power management modules. Alternatively, real-time chat via IRC is a great way to converse with others, learn new things, and sometimes get answers to questions on the spot. Regulatory certificates: FCC ID: 2AC7Z-ESP32WROVER CE notified body: Bay Area Compliance Laboratories Corp. Wiki article Size: 53 mm × 38 mm × 1.2 mm Switch Science ESP-WROOM-32 2-Line Breakout Breakout board for ESP-WROOM-32 module. Version: 0.1 (Prototype) History: Availability: Unreleased; under development M5Stack Core MATRIX Labs MATRIX Voice An open-source voice recognition platform consisting of a 3.14 inches in diameter development board, with a radial array of 7 MEMS microphones connected to a Xilinx Spartan6 FPGA & 8 MiB SDRAM with 18 RGBW LEDs & 64 GPIO pins. FCC ID: 2AM77-ESP-32F Size: 18 mm × 25.5 mm × 2.8 mm Not to be confused with Guoyun Technology's breakout board labeled "ESP32F" (without the hyphen). Hackaday.io project Video History: ESP32-PICO-ADB from SiP module SiLabsCP2102 ESP32-PICO Double Decker from SiP module SiLabsCP2102N Stackable development board pair with stackable design and small size facilitate breadboard use. Four larger through-hole vias allow connection of CAN H and L, 12 V (max. Kit includes fully-tested (completed) main board and 100–240 AC/DC 9 V adapter. AnalogLamb $6.69–$9.99 Price varies with flash memory size (4, 8, or 16 MiB) and quantity. EzSBC ESP32-01 Breakout & Dev Board IoT Controller ESP-WROOM-32or ESP-32S FTDIFT231XS Elecrow ESP32 WIFI/BLE Board ARS01119B ESP-WROOM-32 SiLabsCP2102 Explore Embedded Hornbill ESP32 Dev ESP-WROOM-32 SiLabsCP2102 Hornbill ESP32 Minima ESP-WROOM-32 (None) 52Pi Technology GeeekNET32 GeeekNET ESP32 Dev Board ESP-WROOM-32 SiLabsCP2104 Fusion CAN32 ESP-WROOM-32 SiLabsCP2102N ESP-WROOM-32 based development board with Texas Instruments SN65HVD230DR CAN bus transceiver,

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