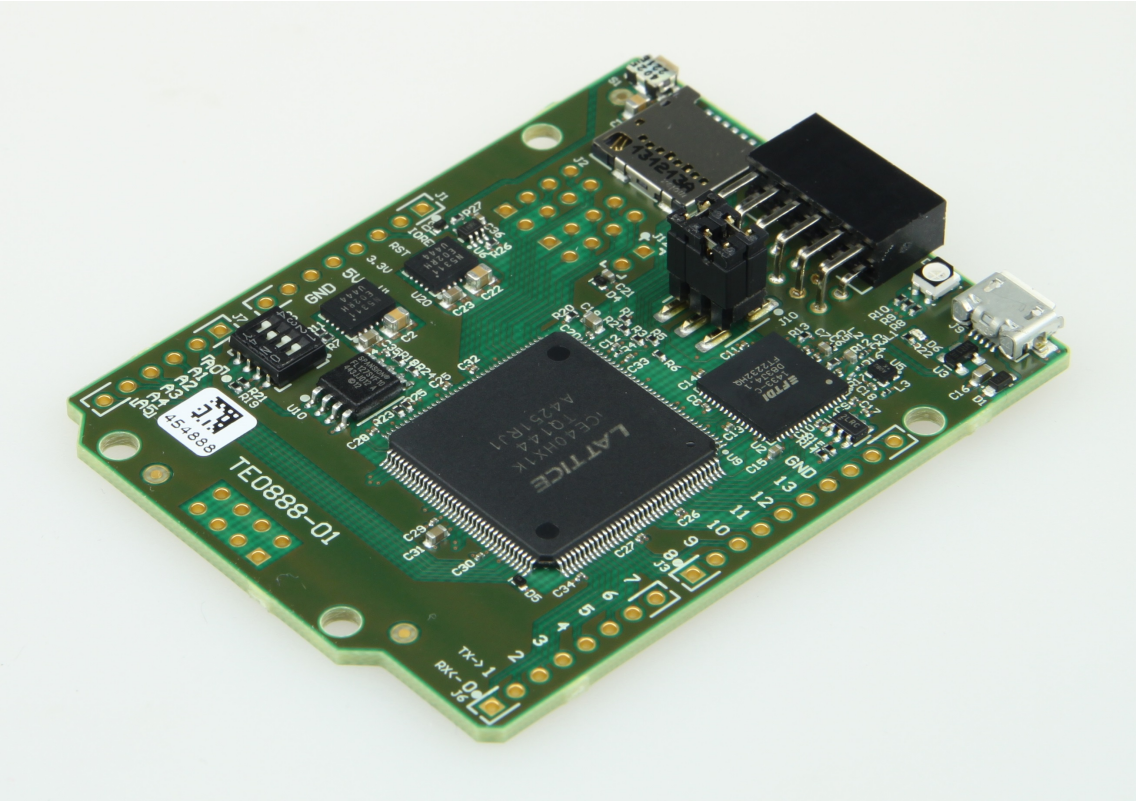
# DIPSY EPT (Emulator Programmer Tool)




## Compatibility with iCEstick Evaluation Kit

| Feature | iCEstick | DIPSY EPT | Notes |
|---|---|---|---|
| FPGA | iCE40HX1K | ice40HX1K | optional assembly with iCE40HX4K |
| iceCUBE | Yes | Yes | free license |
| IceStorm | Yes | Yes * | HX4K is not supported by IceStorm |
| Total I/O in header/connector | 24 (Pmod + 2 headers) | **47** | Pmod+Arduino+ESP8266+DIPSY headers |
| PIO0 - 8 I/O | J1 prototype holes | Arduino Header Digital D0..D7 | |
| PIO1 - Pmod Slot | vertical (not fully compliant to Pmod Specification) | R/A version as per Pmod Specification | Pinout compatible |
| PIO2 - 8 I/O | J3 prototype holes | 4 pins are in "DIPSY" header | iCEstick J3 pins not directly available |
| USB Connector | USB B, "stick form factor" | micro USB | Rev 2 has mini USB |
| USB Interface | FT2232H | FT2232H | |
| FTDI EEPROM | 93LC56 | 93AA56 | |
| FTDI ADBUS | 6 pins connected | 8 pins connected | more options on channel A possible |
| FTDI BDBUS | 7 pins connected | 8 pins connected | 7 pins are at same locations |
| FTDI BCBUS | not connected | 6 pins connected | **Support for high speed FIFO modes** |

| | | | |
|---|---|---|---|
| SPI Flash size | 4 Mbyte | 16 Mbyte | |
| SPI Flash type | Micron N25Q032A | Spansion S25FL127S | Supported by Diamond Programmer |
| SPI Flash Connection | One bit I/O only | **Quad 4 Bit mode supported** | |
| SPI Flash Programming | yes, USB | yes, USB | Supported by Diamond and open source tools |
| Configuration RAM Programming | **not supported** | yes, USB | Supported by Diamond and open source tools |
| Boot mode selection | SPI Flash Boot as fixed default | SPI slave or SPI Master (flash) | ICEd has DIP switches for boot mode |
| Multiboot support | **cold boot select not supported** | cold boot select on DIP Switches | |
| iCE CRESETB | fixed connection ADBUS7 | ADBUS7 with disconnect jumper | more options when using FTDI a for custom protocols |
| 12MHz Clock | FPGA Pin 21 | FPGA Pin 21 | Same as iCEstick, shared from FTDI Clock |
| iRDA Tranceiver | available on board | not present on board | Pins are available in Arduino Analog Header |
| WiFi | as Pmod add-on only | ESP8266 header | ESP header can be used I/O extension with 5 I/O |
| LED0 | LED0 red, active high | RGB LED, active low | |
| LED1 | LED1 red, active high | RGB LED, active low | |
| LED2 | LED2 red, active high | RGB LED, active low | |
| LED3 | LED3 red, active high | SMD LED green, active high | |
| LED4 | LED4 green, active high | not present | |
| SD Card | as Pmod add-on only | microSD socket onboard | |
| Reset (reconfig) button | not available | onboard reset button | |