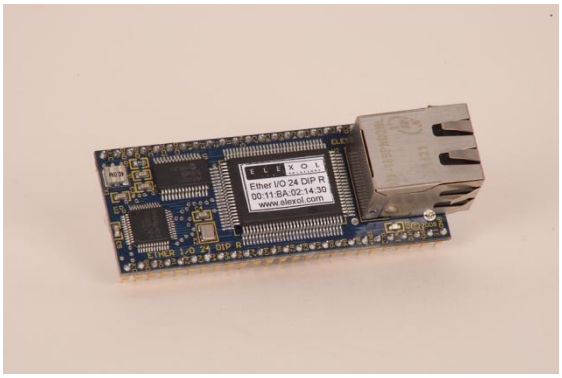
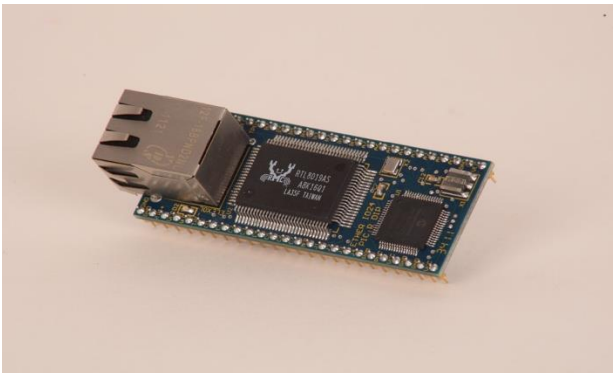
# Differences between Ether IO24 DIP Range

**The Ether IO24 PIC R DIP is the next version of the Ether I/O 24 DIP R**

Outlined below are the differences between the versions:





## Product Name:

ETHER IO24 DIP R

## Hardware:

- Main Controller Parallax SX48
- Network Controller
  Realtek RTL8019AS
- I/O driven directly from controller

## Firmware:

- Command Set outlined in datasheet

## Other Notes:

The Parallax SX48 controller has been called End of Life.

## Product Name:

ETHER IO24 DIP TCP

## Hardware:

- Main Controller PIC18F6622 I/PT
- Network Controller
  Realtek RTL8019AS
- I/O driven from GPIO expanders controlled by main controller
- All I/O connections are located in same position as Ether IO24 DIP R

## Firmware:

- Same firmware functions as previous units for backwards compatibility, but with additional features
- Firmware can be updated via programming jig

## Additional Features:

- TCP packet commands now supported
- SPI and I2C Interface on all three Ports
- Embedded Java Programming and Configuration Interface

Below is a comparison table outlining the differences between the EtherIO24 DIP and the EtherIO24 TCP DIP
Highlighted sections in table indicate differences:

| **Feature** | **EtherIO24 DIP R** | **EtherIO24 DIP TCP** |
|---|---|---|
| Communication interface | Ethernet (UDP,TCP/IP) | Ethernet (UDP,TCP/IP) |
| Configurable Digital Inputs/Outputs | 24 independently programmable I/O | 24 independently programmable I/O |
| Programmable pullups | 24 | 24 |
| SPI interface | 3 ( one on each port) | 3 ( one on each port) |
| I2C Interface | 3 ( one on each port) | 3 ( one on each port) |
| Network IC | RTL8019AS | RTL8019AS |
| Micro Controller | SX48BD | PIC18F6622 |
| Analog Inputs | Nil | Nil |
| TTL Level inputs | Supported | Supported |
| CMOS Level inputs | Supported | Not supported |
| Schmitt Trigger Inputs | Supported | Not Supported |
| Pullups on all Input Pins | Supported | Supported |
| Programmable power on state I/O | Supported | Supported |
| Power Supply | 4.5V - 5VDC | 4.5V - 5VDC |
| Power Consumption | 1.1W | 1.1W |
| | | |
| Protocols Supported | UDP,ARP,DHCP | UDP,TCP,ARP,DHCP |
| UDP interface supported | Supported | Supported |
| TCP interface supported | Not supported | Supported |
| Command Set | Original Command Set | Supports old command set with extended commands for EEPROM |
| EEPROM | External EEPROM | Internal Microcontroller EEPROM |
| EEPROM Usage | 29 Words (58 Bytes) | 63 Words ( 127 Bytes) |
| EEPROM Locations | Not the same listed in table below | Not the same listed in table below |
| | | |
| Port Write Speed | - | 170uS |
| Port Read Speed | - | 32uS |
| Autoscan | - | 10mS minimum rate |
| | | |
| Dimensions | 69mm x 25.2mm x 21mm | 69mm x 25.2mm x 21mm |
| Mounting | 50 Pin 900mil IC socket | 50 Pin 900mil IC socket |
| RoHS Compliant | Yes | Yes |
| | | |

**Mechanical Pinout configuration Comparison Table**

Highlighted Pins in table below indicate the different pins between the unit, which mainly relate to programming headers for factory programming. All other pins share the same configuration

| Pin Number | EtherIO24 DIP R pin configuration | EtherIO24 DIP TCP Pin Configuration |
|---|---|---|
| 1 | GND | GND |
| 2 | GND | GND |
| 3 | TPI+ (Twisted Pair In Pair) | TPI+ (Twisted Pair In Pair) |
| 4 | VCC | VCC |
| 5 | VLD | VLD |
| 6 | TPI- (Twisted Pair In Pair) | TPI- (Twisted Pair In Pair) |
| 7 | PORTC C0 | PORTC C0 |
| 8 | PORTC C1 | PORTC C1 |
| 9 | PORTC C2 | PORTC C2 |
| 10 | PORTC C3 | PORTC C3 |
| 11 | PORTC C4 | PORTC C4 |
| 12 | PORTC C5 | PORTC C5 |
| 13 | PORTC C6 | PORTC C6 |
| 14 | PORTC C7 | PORTC C7 |
| 15 | Not Connected | MCLR Programming Header ICD3 |
| 16 | J1 ( lock eeprom) | J1 ( lock eeprom) |
| 17 | J2 (DHCP, ignore settings) | J2 (DHCP, ignore settings) |
| 18 | J3 (Fixed IP 10.10.10.10) | J3 (Fixed IP 10.10.10.10) |
| 19 | J4 (Fixed IP 192.168.0.10) | J4 (Fixed IP 192.168.0.10) |
| 20 | OSC1 (Program header) | PGM Programming Header ICD3 |
| 21 | OSC2 (Program header) | PGC Programming Header ICD3 |
| 22 | VCC (program header) | VCC |
| 23 | GND (program header) | GND |
| 24 | GND | GND |
| 25 | VCC | VCC |
| 26 | VCC | VCC |
| 27 | GND | GND |
| 28 | PORTA A0 | PORTA A0 |
| 29 | PORTA A1 | PORTA A1 |
| 30 | PORTA A2 | PORTA A2 |
| 31 | PORTA A3 | PORTA A3 |
| 32 | PORTA A4 | PORTA A4 |
| 33 | PORTA A5 | PORTA A5 |
| 34 | PORTA A6 | PORTA A6 |
| 35 | PORTA A7 | PORTA A7 |
| 36 | PORTB B0 | PORTB B0 |
| 37 | PORTB B1 | PORTB B1 |
| 38 | PORTB B2 | PORTB B2 |
| 39 | PORTB B3 | PORTB B3 |
| 40 | PORTB B4 | PORTB B4 |
| 41 | PORTB B5 | PORTB B5 |

| | | |
|---|---|---|
| 42 | PORTB B6 | PORTB B6 |
| 43 | PORTB B7 | PORTB B7 |
| 44 | TPO+ (Twisted Pair Out Pair) | TPO+ (Twisted Pair Out Pair) |
| 45 | VCC | VCC |
| 46 | ACT | ACT |
| 47 | VCC | VCC |
| 48 | TPO- (Twisted Pair Out Pair) | TPO- (Twisted Pair Out Pair) |
| 49 | EE OUT | PGD Programming Header ICD3 |
| 50 | GND | GND |

## EEPROM TABLES

ETHER IO24 DIP R Memory Usage

| Word | MSB Byte | Function | LSB Byte | Function |
|---|---|---|---|---|
| **0-4** | 1-9 | **Reserved (Unwritable)** | 0-8 | **Reserved (Unwritable)** |
| **5** | 11 | Control Bits 2 | 10 | Control Bits 1 |
| **6** | 13 | Fixed IP Address Byte 2 | 12 | Fixed IP Address Byte 1 |
| **7** | 15 | Fixed IP Address Byte 4 | 14 | Fixed IP Address Byte 3 |
| **8** | 17 | Preset Port A Value | 16 | Preset Port A Direction |
| **9** | 19 | Preset Port A Pull up | 18 | Preset Port A Threshold |
| **10** | 21 | Preset Port B Direction | 20 | Preset Port A Schmitt Trigger |
| **11** | 23 | Preset Port B Threshold | 22 | Preset Port B Value |
| **12** | 25 | Preset Port B Schmitt Trigger | 24 | Preset Port B Pull up |
| **13** | 27 | Preset Port C Value | 26 | Preset Port C Direction |
| **14** | 29 | Preset Port C Pull up | 28 | Preset Port C Threshold |
| **15** | 31 | Reserved for Future Use | 30 | Preset Port C Schmitt Trigger |
| **16** | 33 | AutoScan Port B Mask | 32 | AutoScan Port A Mask |
| **17** | 35 | AutoScan Filter Count | 34 | AutoScan Port C Mask |
| **18** | 37 | AutoScan Scan Rate MSB | 36 | AutoScan Scan Rate LSB |
| **19** | 39 | AutoScan Target MAC Address 2 | 38 | AutoScan Target MAC Address 1 |
| **20** | 41 | AutoScan Target MAC Address 4 | 40 | AutoScan Target MAC Address 3 |
| **21** | 43 | AutoScan Target MAC Address 6 | 42 | AutoScan Target MAC Address 5 |
| **22** | 45 | AutoScan Target IP Address 2 | 44 | AutoScan Target IP Address 1 |
| **23** | 47 | AutoScan Target IP Address 4 | 46 | AutoScan Target IP Address 3 |
| **24** | 49 | AutoScan Target Port MSB | 48 | AutoScan Target Port LSB |
| **25** | 51 | Subnet Mask IP Address 2 | 50 | Subnet Mask IP Address 1 |
| **26** | 53 | Subnet Mask IP Address 4 | 52 | Subnet Mask IP Address 3 |
| **27** | 55 | Gateway IP Address 2 | 54 | Gateway IP Address 1 |
| **28** | 57 | Gateway IP Address 4 | 56 | Gateway IP Address 3 |
| **29** | 59 | Programmable Port MSB | 58 | Programmable Port LSB |

**! Words 25 to 47 are reserved for future use and must be left erased to all ones !**

Words 48 to 63 are for your own use and may be used for any function you desire.

ETHER IO24 DIP TCP Memory Usage

| EE Address | Function | EE Address | Function |
|---|---|---|---|
| **0 - 25** | **Reserved (Unwritable)** | | |
| **26** | DHCP Enable | **27** | Fixed IP Address Byte 1 |
| **28** | Fixed IP Address Byte 2 | **29** | Fixed IP Address Byte 3 |
| **30** | Fixed IP Address Byte 4 | **31** | Subnet Mask Byte 1 |
| **32** | Subnet Mask Byte 2 | **33** | Subnet Mask Byte 3 |
| **34** | Subnet Mask Byte 4 | **35** | Gateway IP Byte 1 |
| **36** | Gateway IP Byte 2 | **37** | Gateway IP Byte 3 |
| **38** | Gateway IP Byte 4 | **39** | Command Port LSB |
| **40** | Command Port MSB | **41** | TCP Server Timeout LSB |
| **42** | TCP Server Timeout BSB | **43** | AutoScan Enabled [1] |
| **44** | AutoScan Port A Mask | **45** | AutoScan Port B Mask |
| **46** | AutoScan Port C Mask | **47** | AutoScan Remote Port LSB |
| **48** | AutoScan Remote Port MSB | **49** | AutoScan Remote IP Byte 1 |
| **50** | AutoScan Remote IP Byte 2 | **51** | AutoScan Remote IP Byte 3 |
| **52** | AutoScan Remote IP Byte 4 | **53** | AutoScan Filter Count |
| **54** | AutoScan Period LSB | **55** | AutoScan Period MSB |
| **56** | Power-up Values Enabled | **57** | Power-up Port A Value |
| **58** | Power-up Port B Value | **59** | Power-up Port C Value |
| **60** | Power-up Port A Direction | **61** | Power-up Port B Direction |
| **62** | Power-up Port C Direction | **63** | Power-up Port A Pull-ups |
| **64** | Power-up Port B Pull-ups | **65** | Power-up Port C Pull-ups |
| **66** | Port A Mode | **67** | Port B Mode |
| **68** | Port C Mode | **69** | Port A SPI Mode |
| **70** | Port B SPI Mode | **71** | Port C SPI Mode |
| **96 - 111** | Custom Display Line 1 (16 Bytes) | **112 - 127** | Custom Display Line 2 (16 Bytes) |

[1] AutoScan Enable: Setting this address to 0x01 will enable AutoScan in UDP mode. Setting it to 0x20 will enable AutoScan in TCP mode

****Other differences include:****

- The EtherIO24 TCP DIP includes an embedded web server for configuration, which is not listed as a feature for the EtherIO24 DIP. This webserver is currently unsupported due to web browser changes not allowing UDP packet transfer from browser.

For the most accurate and detailed information, it's recommended to refer directly to the manufacturer's website or contact them for specific product datasheets or user manuals.