

```

1 root@sinocnc-BayTrail-X64:/home/sinocnc# ethercat
2 Please specify a command!
3
4 Usage: ethercat <COMMAND> [OPTIONS] [ARGUMENTS]
5
6 Commands (can be abbreviated):
7 alias      Write alias addresses.
8 config     Show slave configurations.
9 cstruct    Generate slave PDO information in C language.
10 data       Output binary domain process data.
11 debug      Set the master's debug level.
12 domains    Show configured domains.
13 download   Write an SDO entry to a slave.
14 eeo        Display Ethernet over EtherCAT statistics.
15 foe_read   Read a file from a slave via FoE.
16 foe_write  Store a file on a slave via FoE.
17 graph      Output the bus topology as a graph.
18 master     Show master and Ethernet device information.
19 pdos       List Sync managers, PDO assignment and mapping.
20 reg_read   Output a slave's register contents.
21 reg_write  Write data to a slave's registers.
22 rescan     Rescan the bus.
23 sdos       List SDO dictionaries.
24 sii_read   Output a slave's SII contents.
25 sii_write  Write SII contents to a slave.
26 slaves     Display slaves on the bus.
27 soe_read   Read an SoE IDN from a slave.
28 soe_write  Write an SoE IDN to a slave.
29 states     Request application-layer states.
30 upload     Read an SDO entry from a slave.
31 version    Show version information.
32 xml        Generate slave information XML.
33
34 Global options:
35 --master -m <master>      Comma separated list of masters
36                               to select, ranges are allowed.
37                               Examples: '1,3', '5-7,9', '-3'.
38                               Default: '.' (all).
39 --force -f                Force a command.
40 --quiet -q                Output less information.
41 --verbose -v              Output more information.
42 --help -h                 Show this help.
43
44 Numerical values can be specified either with decimal (no
45 prefix), octal (prefix '0') or hexadecimal (prefix '0x') base.
46
47 Call 'ethercat <COMMAND> -help' for command-specific help.
48
49 Send bug reports to fp@high-essen.com.

```

2. 主站启动/停止控制

指令帮助：/etc/init.d/ethercat

start启动总线

stop停止总线

restart重启总线

status获取运行状态

```
1 root@sinocnc-BayTrail-X64:/home/sinocnc# /etc/init.d/ethercat
2 USAGE: /etc/init.d/ethercat {start|stop|restart|status}
3 root@sinocnc-BayTrail-X64:/home/sinocnc# /etc/init.d/ethercat stop
4 Shutting down EtherCAT master 1.5.2 done
5 root@sinocnc-BayTrail-X64:/home/sinocnc# /etc/init.d/ethercat start
6 Starting EtherCAT master 1.5.2 done
7 root@sinocnc-BayTrail-X64:/home/sinocnc# /etc/init.d/ethercat stop
8 Shutting down EtherCAT master 1.5.2 done
```

3. 读取SDO配置列表

指令帮助：ethercat sdos

```
1 root@sinocnc-BayTrail-X64:/home/sinocnc# ethercat sdos
2 SDO 0x1000, "Device type"
3 0x1000:00, r-r-r-, uint32, 32 bit, "Device type"
4 SDO 0x1001, "Error register"
5 0x1001:00, r-r-r-, uint8, 8 bit, "Error register"
6 SDO 0x1008, "Device name"
7 0x1008:00, r-r-r-, string, 96 bit, "Device name"
8 SDO 0x1009, "Hardware version"
9 0x1009:00, r-r-r-, string, 24 bit, "Hardware version"
10 SDO 0x100a, "Software version"
11 0x100a:00, r-r-r-, string, 24 bit, "Software version"
12 SDO 0x1010, "Store parameters"
13 0x1010:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
14 0x1010:01, r-r-r-, uint32, 32 bit, "SubIndex 001"
15 SDO 0x1011, "Restore default parameters"
16 0x1011:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
17 0x1011:01, r-r-r-, uint32, 32 bit, "SubIndex 001"
18 SDO 0x1018, "Identity"
19 0x1018:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
20 0x1018:01, r-r-r-, uint32, 32 bit, "Vendor ID"
21 0x1018:02, r-r-r-, uint32, 32 bit, "Product code"
22 0x1018:03, r-r-r-, uint32, 32 bit, "Revision"
23 0x1018:04, r-r-r-, uint32, 32 bit, "Serial number"
24 SDO 0x10f0, "Backup parameter handling"
25 0x10f0:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
26 0x10f0:01, r-r-r-, uint32, 32 bit, "Checksum"
27 SDO 0x10f1, "Error Settings"
28 0x10f1:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
29 0x10f1:01, r-r-r-, uint32, 32 bit, "Local Error Reaction"
30 0x10f1:02, r-r-r-, uint16, 16 bit, "Sync Error Counter Limit"
31 SDO 0x10f3, "Diagnosis History"
32 0x10f3:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
33 0x10f3:01, r-r-r-, uint8, 8 bit, "Maximum Messages"
34 0x10f3:02, r-r-r-, uint8, 8 bit, "Newest Message"
35 0x10f3:03, r-r-r-, uint8, 8 bit, "Newest Acknowledged Message"
36 0x10f3:04, r-r-r-, bool, 1 bit, "New Message Available"
37 0x10f3:05, r-r-r-, uint16, 16 bit, "Flags"
38 0x10f3:06, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
39 0x10f3:07, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
40 0x10f3:08, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
41 0x10f3:09, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
42 0x10f3:0a, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
43 0x10f3:0b, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
44 0x10f3:0c, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
45 0x10f3:0d, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
46 0x10f3:0e, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
47 0x10f3:0f, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
48 0x10f3:10, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
49 0x10f3:11, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
50 0x10f3:12, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
51 0x10f3:13, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
52 0x10f3:14, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
53 0x10f3:15, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
54 0x10f3:16, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
55 0x10f3:17, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
56 0x10f3:18, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
57 0x10f3:19, r-r-r-, octet_string, 0 bit, "Diagnosis Message"
58 SDO 0x1610, "Write output 16bit process data mapping"
59 0x1610:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
60 0x1610:01, r-r-r-, uint32, 32 bit, "SubIndex 001"
61 SDO 0x1a10, "Read input 16bit process data mapping"
62 0x1a10:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
63 0x1a10:01, r-r-r-, uint32, 32 bit, "SubIndex 001"
64 SDO 0x1c00, "Sync manager type"
65 0x1c00:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
66 0x1c00:01, r-r-r-, uint8, 8 bit, "SubIndex 001"
67 0x1c00:02, r-r-r-, uint8, 8 bit, "SubIndex 002"
68 0x1c00:03, r-r-r-, uint8, 8 bit, "SubIndex 003"
69 0x1c00:04, r-r-r-, uint8, 8 bit, "SubIndex 004"
70 SDO 0x1c12, "SyncManager 2 assignment"
71 0x1c12:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
72 0x1c12:01, r-r-r-, uint16, 16 bit, "SubIndex 001"
73 SDO 0x1c13, "SyncManager 3 assignment"
74 0x1c13:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
75 0x1c13:01, r-r-r-, uint16, 16 bit, "SubIndex 001"
76 SDO 0x1c32, "SM output parameter"
77 0x1c32:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
78 0x1c32:01, r-r-r-, uint16, 16 bit, "Synchronization Type"
79 0x1c32:02, r-r-r-, uint32, 32 bit, "Cycle Time"
80 0x1c32:03, -----, type 0000, 32 bit, "SubIndex 003"
81 0x1c32:04, r-r-r-, uint16, 16 bit, "Synchronization Types supported"
82 0x1c32:05, r-r-r-, uint32, 32 bit, "Minimum Cycle Time"
83 0x1c32:06, r-r-r-, uint32, 32 bit, "Calc and Copy Time"
84 0x1c32:07, -----, type 0000, 32 bit, "SubIndex 007"
85 0x1c32:08, r-r-r-, uint16, 16 bit, "Get Cycle Time"
86 0x1c32:09, r-r-r-, uint32, 32 bit, "Delay Time"
87 0x1c32:0a, r-r-r-, uint32, 32 bit, "Sync0 Cycle Time"
88 0x1c32:0b, r-r-r-, uint16, 16 bit, "SM-Event Missed"
89 0x1c32:0c, r-r-r-, uint16, 16 bit, "Cycle Time Too Small"
90 0x1c32:0d, -----, type 0000, 16 bit, "Shift Time Too Short"
91 0x1c32:0e, -----, type 0000, 16 bit, "SubIndex 014"
92 0x1c32:0f, -----, type 0000, 32 bit, "SubIndex 015"
93 0x1c32:10, -----, type 0000, 32 bit, "SubIndex 016"
94 0x1c32:11, -----, type 0000, 32 bit, "SubIndex 017"
95 0x1c32:12, -----, type 0000, 32 bit, "SubIndex 018"
96 0x1c32:13, -----, type 0000, 0 bit, "SubIndex 019"
97 0x1c32:14, -----, type 0000, 0 bit, "SubIndex 020"
```

```
98 0x1c32:15, -----, type 0000, 0 bit, "SubIndex 021"
99 0x1c32:16, -----, type 0000, 0 bit, "SubIndex 022"
100 0x1c32:17, -----, type 0000, 0 bit, "SubIndex 023"
101 0x1c32:18, -----, type 0000, 0 bit, "SubIndex 024"
102 0x1c32:19, -----, type 0000, 0 bit, "SubIndex 025"
103 0x1c32:1a, -----, type 0000, 0 bit, "SubIndex 026"
104 0x1c32:1b, -----, type 0000, 0 bit, "SubIndex 027"
105 0x1c32:1c, -----, type 0000, 0 bit, "SubIndex 028"
106 0x1c32:1d, -----, type 0000, 0 bit, "SubIndex 029"
107 0x1c32:1e, -----, type 0000, 0 bit, "SubIndex 030"
108 0x1c32:1f, -----, type 0000, 0 bit, "SubIndex 031"
109 0x1c32:20, r-r-r-, bool, 1 bit, "Sync Error"
110 SDO 0x1c33, "SM input parameter"
111 0x1c33:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
112 0x1c33:01, r-r-r-, uint16, 16 bit, "Synchronization Type"
113 0x1c33:02, r-r-r-, uint32, 32 bit, "Cycle Time"
114 0x1c33:03, -----, type 0000, 32 bit, "SubIndex 003"
115 0x1c33:04, r-r-r-, uint16, 16 bit, "Synchronization Types supported"
116 0x1c33:05, r-r-r-, uint32, 32 bit, "Minimum Cycle Time"
117 0x1c33:06, r-r-r-, uint32, 32 bit, "Calc and Copy Time"
118 0x1c33:07, -----, type 0000, 32 bit, "SubIndex 007"
119 0x1c33:08, rrwrrw, uint16, 16 bit, "Get Cycle Time"
120 0x1c33:09, r-r-r-, uint32, 32 bit, "Delay Time"
121 0x1c33:0a, rrwrrw, uint32, 32 bit, "Sync0 Cycle Time"
122 0x1c33:0b, r-r-r-, uint16, 16 bit, "SM-Event Missed"
123 0x1c33:0c, r-r-r-, uint16, 16 bit, "Cycle Time Too Small"
124 0x1c33:0d, -----, type 0000, 16 bit, "Shift Time Too Short"
125 0x1c33:0e, -----, type 0000, 16 bit, "SubIndex 014"
126 0x1c33:0f, -----, type 0000, 32 bit, "SubIndex 015"
127 0x1c33:10, -----, type 0000, 32 bit, "SubIndex 016"
128 0x1c33:11, -----, type 0000, 32 bit, "SubIndex 017"
129 0x1c33:12, -----, type 0000, 32 bit, "SubIndex 018"
130 0x1c33:13, -----, type 0000, 0 bit, "SubIndex 019"
131 0x1c33:14, -----, type 0000, 0 bit, "SubIndex 020"
132 0x1c33:15, -----, type 0000, 0 bit, "SubIndex 021"
133 0x1c33:16, -----, type 0000, 0 bit, "SubIndex 022"
134 0x1c33:17, -----, type 0000, 0 bit, "SubIndex 023"
135 0x1c33:18, -----, type 0000, 0 bit, "SubIndex 024"
136 0x1c33:19, -----, type 0000, 0 bit, "SubIndex 025"
137 0x1c33:1a, -----, type 0000, 0 bit, "SubIndex 026"
138 0x1c33:1b, -----, type 0000, 0 bit, "SubIndex 027"
139 0x1c33:1c, -----, type 0000, 0 bit, "SubIndex 028"
140 0x1c33:1d, -----, type 0000, 0 bit, "SubIndex 029"
141 0x1c33:1e, -----, type 0000, 0 bit, "SubIndex 030"
142 0x1c33:1f, -----, type 0000, 0 bit, "SubIndex 031"
143 0x1c33:20, r-r-r-, bool, 1 bit, "Sync Error"
144 SDO 0x3000, "Filter Constant"
145 0x3000:00, rrwrrw, uint16, 16 bit, "Filter Constant"
146 SDO 0x3102, "Polarity input 16bit"
147 0x3102:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
148 0x3102:01, rrwrrw, uint16, 16 bit, "Polarity input 1st word"
149 SDO 0x3302, "Polarity output 16bit"
150 0x3302:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
151 0x3302:01, rrwrrw, uint16, 16 bit, "Polarity output 1st word"
152 SDO 0x3306, "Error mode ouptut 16bit"
153 0x3306:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
154 0x3306:01, rrwrrw, uint16, 16 bit, "Error mode output 1st word"
155 SDO 0x3307, "Error value output 16bit"
156 0x3307:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
157 0x3307:01, rrwrrw, uint16, 16 bit, "Error value output 1st word"
158 SDO 0x6100, "Read input 16bit"
159 0x6100:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
160 0x6100:01, r-r-r-, uint16, 16 bit, "Read input 1st word"
161 SDO 0x7100, "Write output 16bit"
162 0x7100:00, r-r-r-, uint8, 8 bit, "SubIndex 000"
163 0x7100:01, rrwrrw, uint16, 16 bit, "Write output 1st word"
```

4. 获取总线连接的从站列表

指令帮助：ethercat slaves

```
1 root@sinocnc-BayTrail-X64:/home/sinocnc# ethercat slaves
2 0 0:0 PREOP + 0x0000098b:0x10011010
```

5. 获取总站运行信息查询

指令帮助：ethercat master

```
1 root@sinocnc-BayTrail-X64:/home/sinocnc# ethercat master
2 Master0
3 Phase: Idle
4 Active: no
5 Slaves: 1
6 Ethernet devices:
7   Main: 00:15:fd:00:03:f1 (attached)
8   Link: UP
9   Tx frames: 1437901
10  Tx bytes: 86305388
11  Rx frames: 1437900
12  Rx bytes: 86305328
13  Tx errors: 0
14  Tx frame rate [1/s]: 250 250 250
15  Tx rate [KByte/s]: 14.6 14.6 14.7
16  Rx frame rate [1/s]: 250 250 250
17  Rx rate [KByte/s]: 14.6 14.6 14.7
18 Common:
19  Tx frames: 1437901
20  Tx bytes: 86305388
21  Rx frames: 1437900
22  Rx bytes: 86305328
23  Lost frames: 0
24  Tx frame rate [1/s]: 250 250 250
25  Tx rate [KByte/s]: 14.6 14.6 14.7
26  Rx frame rate [1/s]: 250 250 250
27  Rx rate [KByte/s]: 14.6 14.6 14.6
28  Loss rate [1/s]: 0 -0 0
29  Frame loss [%]: 0.0 -0.0 0.0
30 Distributed clocks:
31 Reference clock: Slave 0
32 Application time: 0
33 2000-01-01 00:00:00.000000000
```

6. 读取/写入SDO canopen数据

指令帮助：ethercat upload 主索引 子索引|

ethercat download 主索引 子索引 数值

```
1 root@sinocnc-BayTrail-X64:/home/sinocnc# ethercat upload 0x7100 0x01
```



```
2 0x0000 0
3 root@sinocnc-BayTrail-X64:/home/sinocnc# ethercat download 0x7100 0x01 0xff
4 root@sinocnc-BayTrail-X64:/home/sinocnc# ethercat upload 0x7100 0x01
5 0x00ff 255
```

本文启动开头作用，更多操作需要广大读者进行测试。


谢谢大家，下次再会。。。


Ethercat主站控制3个伺服的ethercat报文分析	09-14
目前有多种用于提供实时功能的以太网方案：例如，通过较高级的协议层禁止CSMA/CD存取过程，并使用时间片或轮询过程来取代它。其它方案使用专用...	
EtherCAT主站开发方案-含ZedBoard和X86测试数据	11-04
EtherCAT主站开发方案-含ZedBoard和X86测试数据 EtherCAT主站开发方案-含ZedBoard和X86测试数据	

 优质评论可以帮助作者获得更高权重

 评论

 往事随风，浮生若梦： 你的配置文件是怎么描述的？怎么与从站进行通信。 2 年前 [回复](#) ...


 长江后浪博客 [博主](#) 回复： 很多模块一般会把映射对列表直接配置好出厂 5 月前 [回复](#) ...

 思泽之思： 大佬能出一篇讲解HAL的博客吗 2 年前 [回复](#) ...

Linux中EtherCAT主站执行过程_若海人生的专栏	9-9
在上层申请主站,完成各种主从站的配置项之后,通过ecrt_master_activate函数调用激活整个EtherCAT总线,ecrt_master_activate函数最主要的工作还是完...	
EtherCAT (学习笔记)_pwl999的博客_ethercat	9-8
主站设备使用标准的以太网控制器,具有良好的兼容性,任何具有网络接口卡的计算机和具有以太网控制的嵌入式设备都可以作为EtherCAT的主站。对于PC...	
【LinuxCNC开发序列教程一】Ubuntu环境下安装Ethercat主站	长江后浪  2125
老朋友们，本序列教程用于Linuxcnc开发实际遇到的问题。更多的用于命令记录，希望对后面的朋友少找点弯路。系统：Ubuntu 12 LTS 内核：3.4.9-rc...	
Linuxcnc-ighethercat 调试心得	混合编程  2910
Linuxcnc-ighetherca调试心得 一、前言 如果想通过linuxcnc和ighethercat来实现对伺服电机的控制。那就要搞明白你需要经过哪几个步骤才能实现伺服控...	
EtherCAT从站开发入门_xingsongyu的博客_ethercat从站开发	8-19
EtherCAT从站开发入门 jackson2021 关注 EtherCAT从站开发指南-含软件和硬件选型介绍 12-03	
LinuxCNC搭配igh EtherCat Master开源Ethercat主站通讯控制测试	fengfengcloud的博客  8000
硬件环境：1、树莓派3B打了PREEMPT实时补丁（具体补丁过程网上有）2、台达ASDA-A2-E伺服驱动器 3、倍福EK1100、EL1008、EL2008标准IO输...	
linuxcnc-ethercat基础配置	01-08
使用近信的伺服和电机，linuxcnc结合ethercat主站hal文件配置，ini文件配置，驱动近信伺服的基础配置	
linuxcnc-我LinuxCNC配置-源码 最新发布	03-31
我LinuxCNC当前配置 此仓库未完全创建供他人使用。它特定于我的计算机配置，并打算与其他人共享以帮助解决配置错误。如果您在机器上使用，请...	
基于LinuxCNC下的EtherCAT的伺服电机控制《二》	思泽之思  3111
第二段，伺服电机动起来了，接下来的连接HAL，ini xml 文件，实现界面控制，不再是命令行 继续更新中	
EtherCAT主站开发	qq_33441379的博客  624
什么是EtherCAT P？EtherCAT P（EtherCAT+Power电源）是在线缆层上对EtherCAT技术的补充。P代表电源，即在标准的4芯以太网电缆中不仅实现数...	
EtherCAT从站开发入门 热门推荐	ethercat_i7的博客  1万+
EtherCAT从站开发中，除了常见的ESC(FPGA IP)+DSP方案外，TI、瑞萨、英飞凌等芯片厂家也纷纷推出了集成ESC功能的芯片，本文介绍英飞凌xmc48...	
详解EtherCAT主站协议栈.pdf	07-23
EtherCAT（Ethernet for Control Automation Technology）是一种基于以太网的开发构架的实时工业现场总线通讯协议，它于2003年被引入市场，于2007...	
贝福 EtherCAT 开发板 应用手册	11-28
贝福 EtherCAT 开发板 EL9800 应用手册，解释说明了 EL9800如何使用的步骤	
linux下的Ethercat主站驱动程序	03-02
EtherCAT Master1.5.2, 主站驱动程序，涉及到从站配置，pdo映射，sdo等	
Ethercat 主站源码介绍	06-24
北京盟通科技有限公司是中国唯一的指定合作伙伴，承接国内关于EtherCAT主站协议相关的产品销售和技术支持 等合作，作为一个技术服...	
LinuxCNC与EtherCAT的理解	思泽之思  4434
数控系统的比对 1、一体化的高度集成开发的数控系统 2、基于PLC,轴运动的运动控制卡开发的数控系统；将运动控制部分写入运动控制卡，由该设备控...	
EtherCAT主站	 560
就目前而言，EtherCAT技术已经很普遍，各个运动控制器升级到该技术，也很有必要，必将节省大量的人力物力，提高系统的稳定性！首先，就从站而言...	
EtherCAT主站代码	03-13
这是一份基于ethercat igh主站代码修改与用例。ethercat 主站运行于xenomai	
Linux Ethercat主站	在路上@Amos  515
IGH EtherCAT 开源主站安装及测试 看来这个开源的是能用的，直接用了个装ubuntu的普通工控机就可以控制松下驱动器让电机转。	
EtherCat精简版主站代码	07-22
一个用于嵌入式系统的EtherCat主站代码，Windows下编译略有问题。	

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