SIA_RCS_OS.img系统镜像使用

2018年4月27日 12:14

系统镜像网盘地址：

链接： https://pan.baidu.com/s/1hVl23BJUsR9OtsgdXXupEw

提取码：p26f

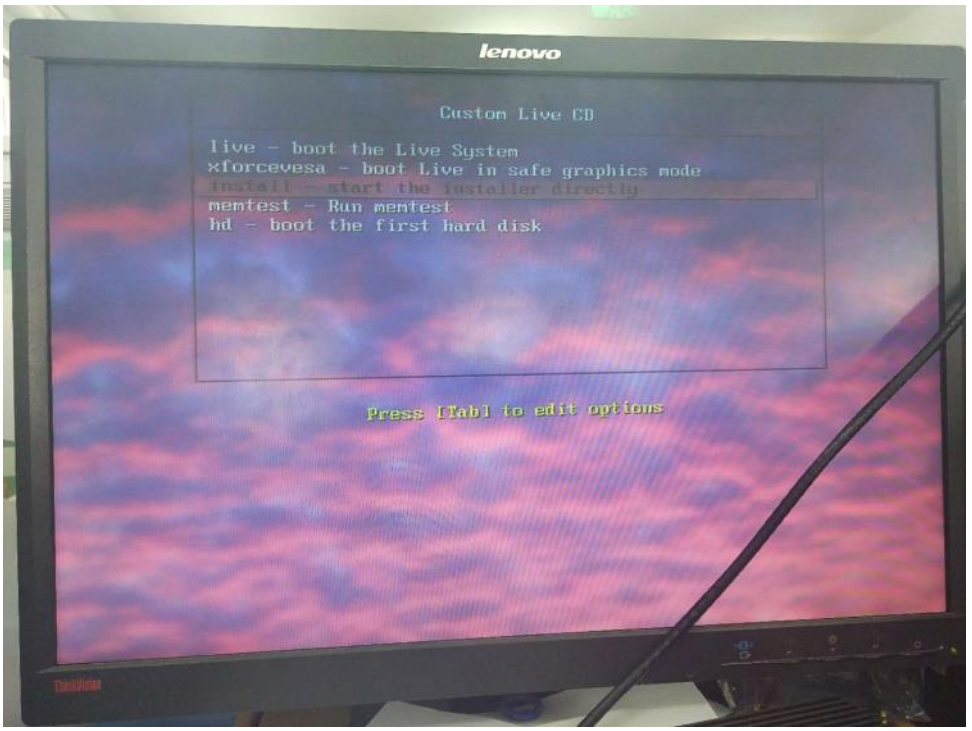
驱动开发所需内核源码下载：

链接： https://pan.baidu.com/s/1T8mCu-2ibUhx29cU_mrjmQ

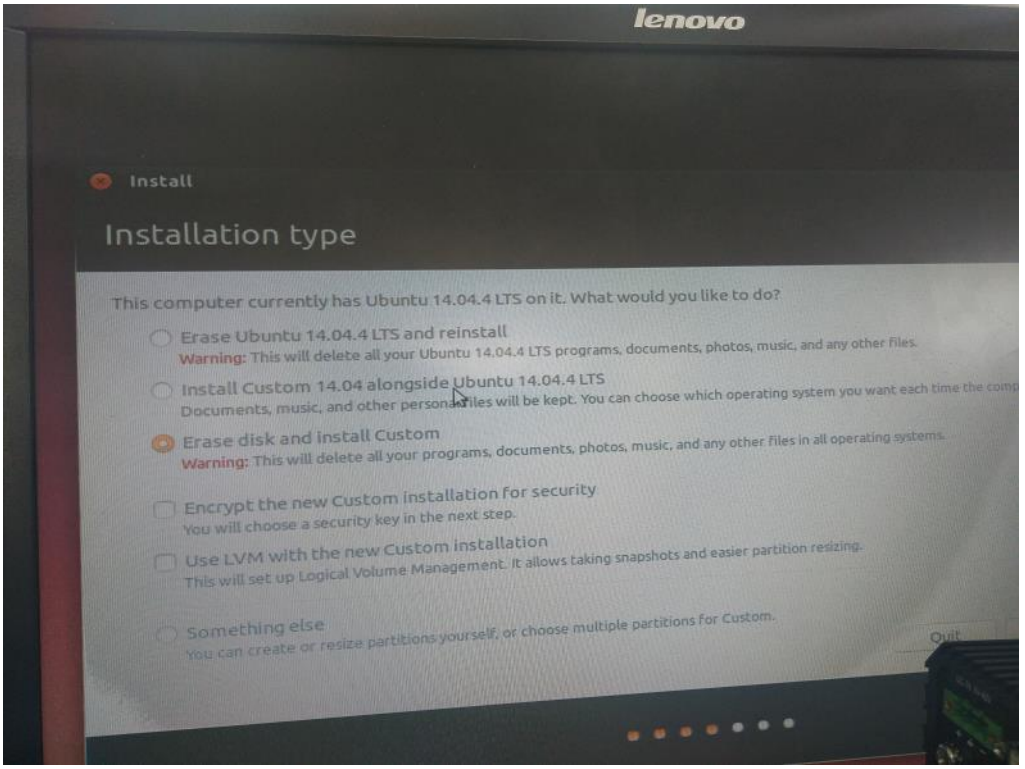
提取码：hf7c

用U盘做启动盘，重启选择U盘启动即可。

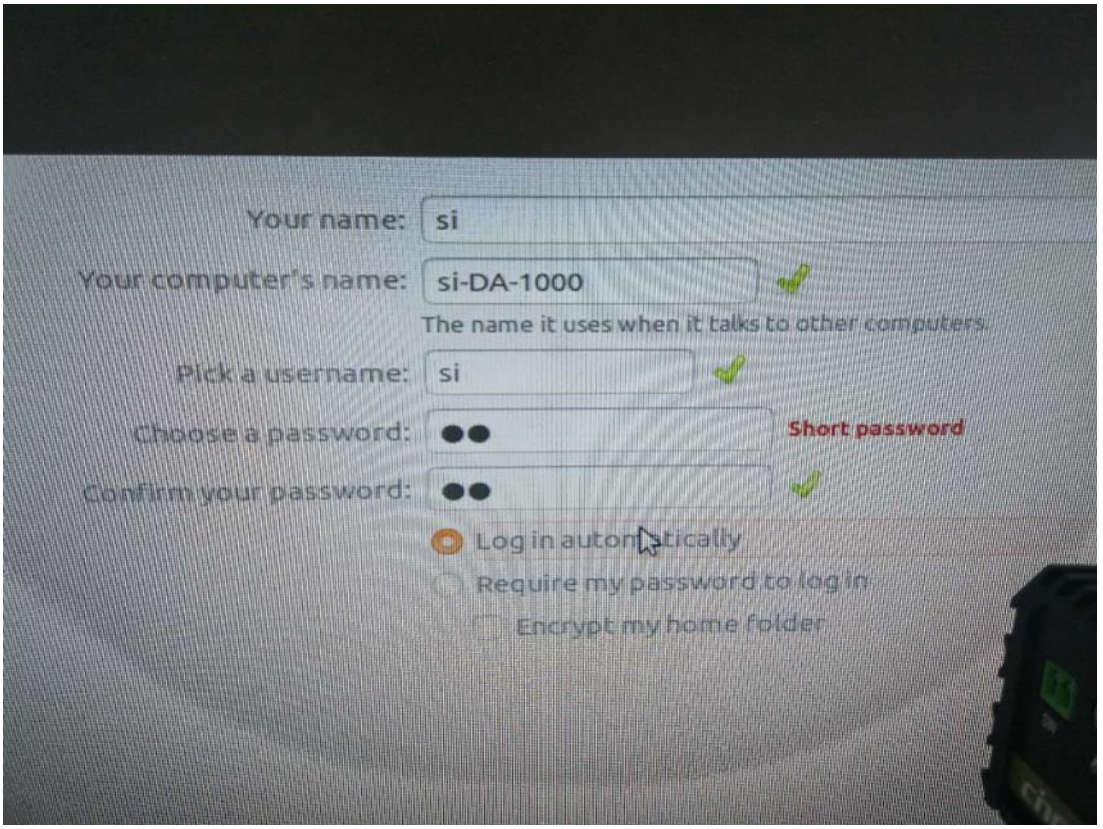
选择Install

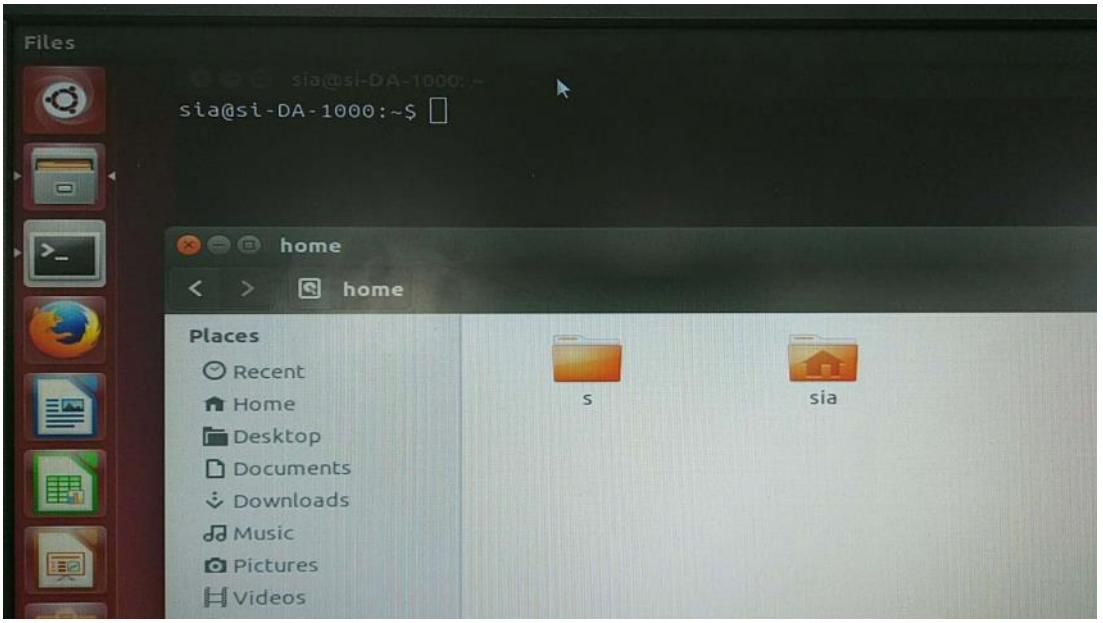


安装类型选择：Erase disk and install Custom



由于系统镜像中保留了普通用户数据，所以在安装过程中设置用户即密码页的设置并无效,如:
如下图设置安装的结果，实际只有Your computer's name 改变，登录用户仍为sia。且并无si用户存在。



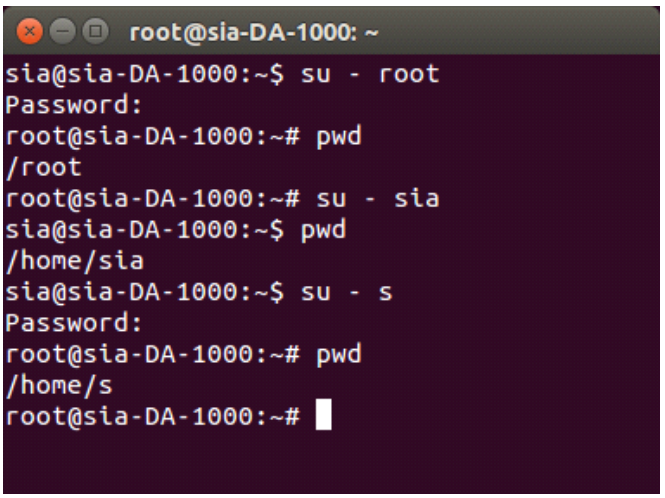


除此之外，所有安装过程与官方的Ubuntu安装完全一致。

装机完成进入系统后：

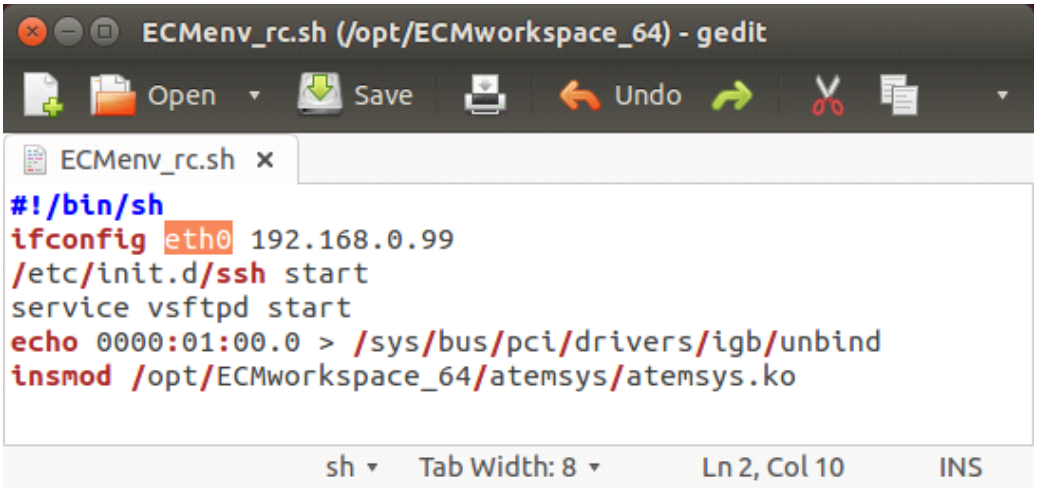
系统用户说明：所有用户的密码都是用户名

sia	登录用户	普通用户	/home/sia
s		root权限	/home/s
root		root用户	/root



- 网口信息：原先设置eth0(一般选ifconfig中的第一个)为总线端口，eth1(一般选ifconfig中的第二个)为ssh调试口，重装机的总线端口可能会变化。

  注：执行ifconfig命令，可以看到Ethernet网口信息：eth*或enp0s*。一般来说，缺失的那个网口被用作了总线端口，新装系统，如下图所示，是0000:01:00.0对应的Ethernet口用作了总线端口（echo行）



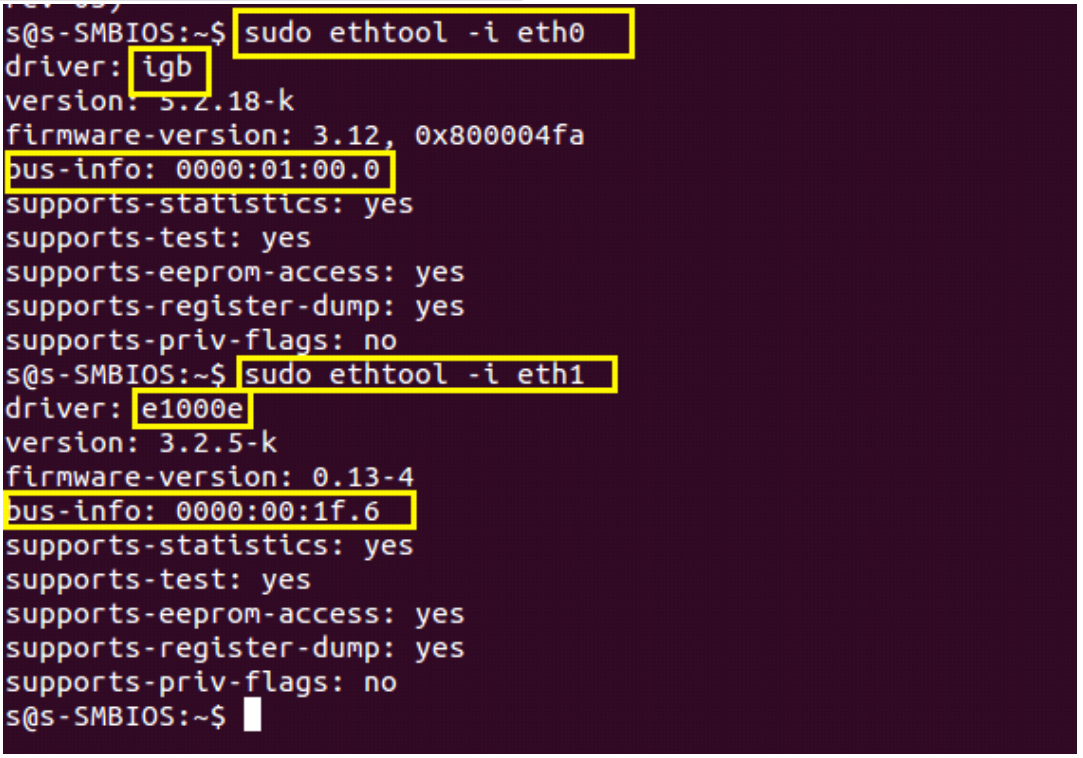
★ 如果说所有Ethernet口都在，则需要：修改ECMenv_rc.sh文件中 echo行。

选取eth0，使用ethtool命令获取对应的ID号和dirver信息，然后修改ECMenv_rc.sh文件

如下图：eth0 对应的ID号为 01:00.0；driver为：igb；具体值，根据装机实际情况确定。

然后，修改ECMenv_rc.sh文件中 echo行。请确保[bus-info]和[driver]具体值的准确性。

```
echo [bus-info] > /sys/bus/pci/drivers/[driver]/ubind
```



★ 下图ifconfig中无eth1，说明实验机将eth1用作总线端口。因此需要重新分配ssh端口，用黄色底色标注的部分B-1。

如果ifconfig中有eth1设备，则无需重新分配ssh端口，步骤B-1跳过。

```
sia@si-DA-1000: ~
sia@si-DA-1000:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 2c:94:64:01:32:de
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
          Interrupt:19 Memory:90500000-90520000

eth2      Link encap:Ethernet  HWaddr 2c:94:64:00:fe:b7
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
          Memory:90600000-9067ffff

eth3      Link encap:Ethernet  HWaddr 2c:94:64:01:32:df
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
          Interrupt:16 Memory:90400000-90420000
```

相关设置修正

A. EtherCAT总线程序测试

1. 找到端口：

   终端执行>sudo ethtool -p ethx，对应端口的灯会闪烁

   ```
   sia@si-DA-1000: ~
   sia@si-DA-1000:~$ sudo ethtool -p eth0
   [sudo] password for sia:
   ^Csia@si-DA-1000:~$ sudo ethtool -p eth1
   Cannot identify NIC: No such device
   sia@si-DA-1000:~$ sudo ethtool -p eth2
   ^Csia@si-DA-1000:~$ sudo ethtool -p eth3
   ```

   可以看到eth1设备不存在，由于用作了EtherCAT端口

2. 将从站连接到eth1对应的网口，再执行runECM

   到/opt/ECMworkspace_64路径下，执行>sudo sh runECM.sh

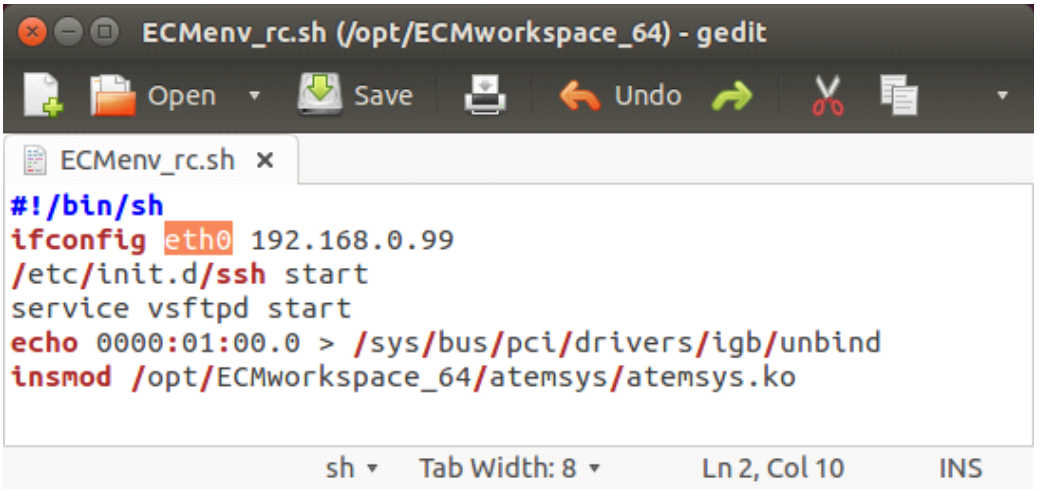
```
sia@si-DA-1000: /opt/ECMworkspace_64
sia@si-DA-1000:/opt/ECMworkspace_64$ sudo ethtool -p eth0
[sudo] password for sia:
^Csia@si-DA-1000:/opt/ECMworkspace_64$ sudo ethtool -p eth1
Cannot identify NIC: No such device
sia@si-DA-1000:/opt/ECMworkspace_64$ ^C
sia@si-DA-1000:/opt/ECMworkspace_64$ sudo ethtool -p eth2
^Csia@si-DA-1000:/opt/ECMworkspace_64$ sudo ethtool -p eth3
^Csia@si-DA-1000:/opt/ECMworkspace_64$ sudo ethtool -p eth2

^Csia@si-DA-1000:/opt/ECMworkspace_64$ sudo sh runECM.sh
sia@si-DA-1000:/opt/ECMworkspace_64$ 48 241104 992
Full command line: -f "eni.xml"-i8254x 3 1 -b 1000 -v 3 -perf -t 0

000005 : Run demo now with cycle time 1000 usec
000005 : Using AuxClock
000005 : Calibrate tsc measurement... done: 2000 MHz
003006 : ==========================
003006 : Initialize EtherCAT Master
003006 : ==========================
003006 : EC-Master V2.9.1.06 (Protected) for Linux_x64 Copyright acontis t
ogies GmbH @ 2016
003006 : OsGetLinkLayerRegFunc: try to load '/opt/ECMworkspace_64/libemllI
so'
003007 : PCI: device 05:00.0 found
003007 : PCI: device 06:00.0 found
003008 : PCI: device 01:00.0 found
004732 : Unlicensed version, stop sending ethernet frames after 60 minutes
004852 : Retry sending a acyclic frame due to timeout
004852 : EtherCAT command IDX set value=0xdf
004972 : Retry sending a acyclic frame due to timeout
004972 : EtherCAT command IDX set value=0xe0
005071 : Bus scan successful - 6 slaves found
005090 : 1 identical messages skipped
005090 : ************************************************************
*******
005090 : Slave ID.............: 0x00000000
005090 : Bus Index............: 0
005090 : Bus AutoInc Address.: 0x0000
005090 : Bus Station Address.: 0x03e9 (1001)
```

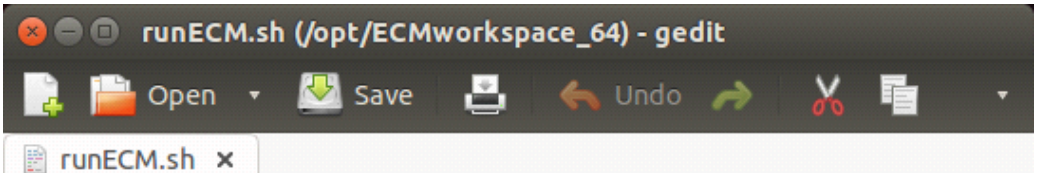
如图所示。找到了PCI设备01:00.0，

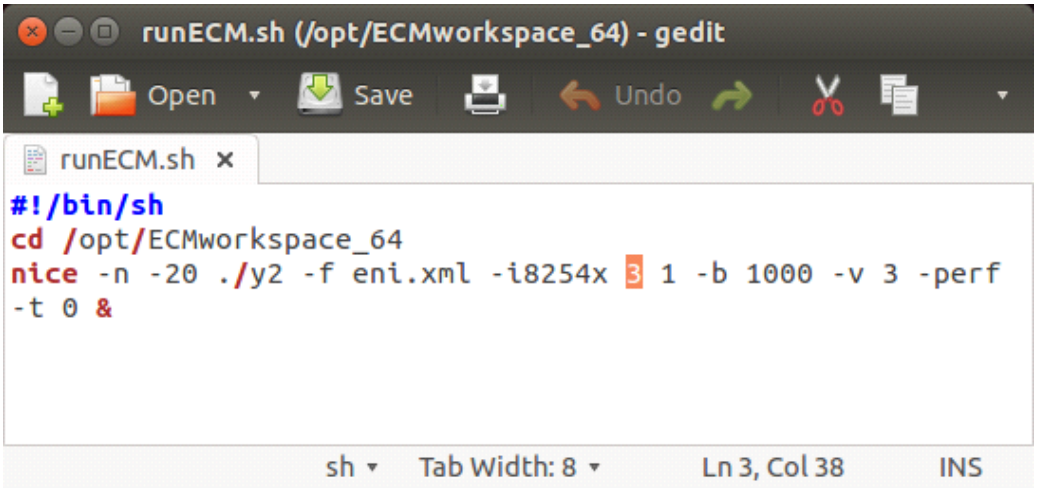
这与该路径下ECMenv_rc.sh文件中倒数第二行的设置一致。



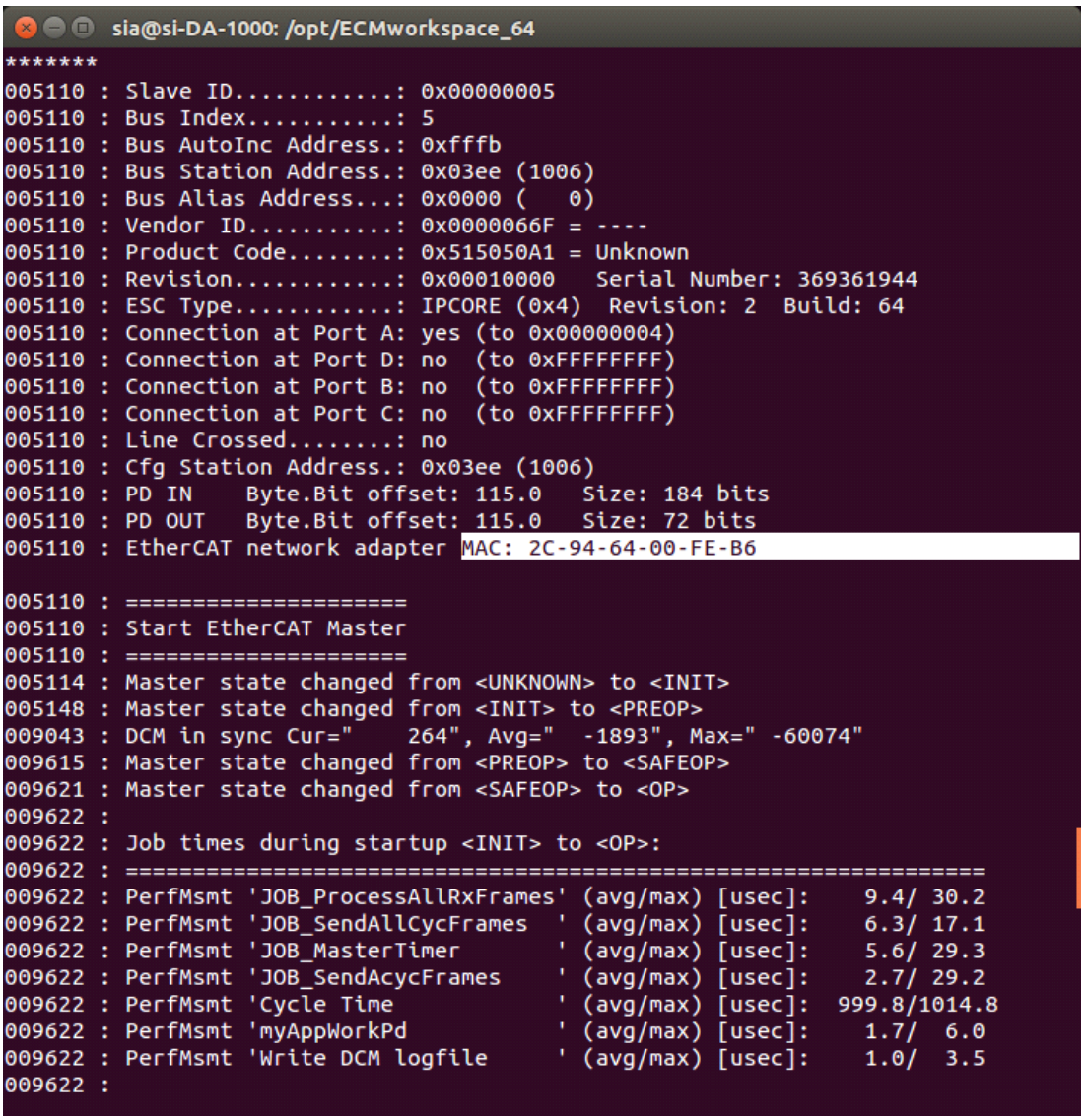
如果，执行到此，报错PCI：device xx:xx.x not found

修改该路径下runECM.sh文件中，如下图所示选中参数，可选值为[1~N],N为端口个数





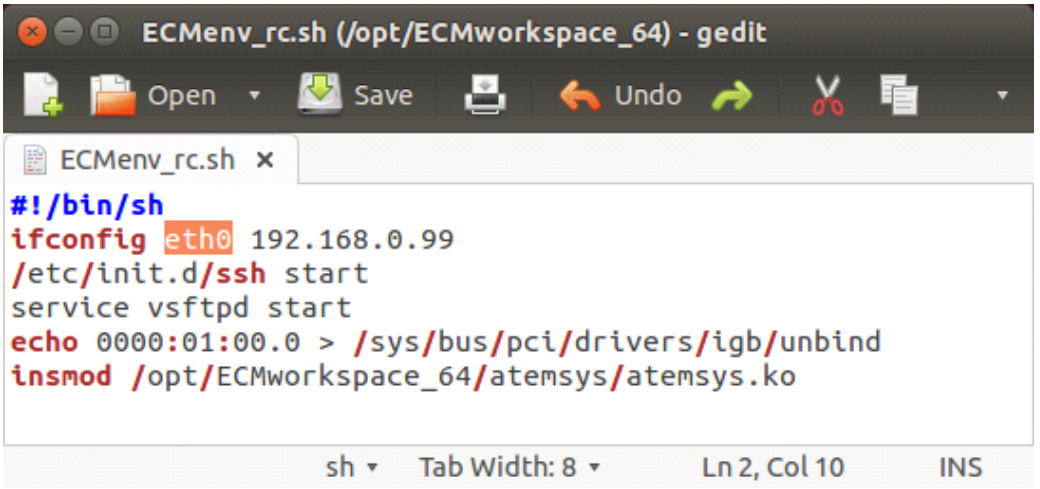
如果成功，如下图所示，获取到端口MAC地址，并持续运行



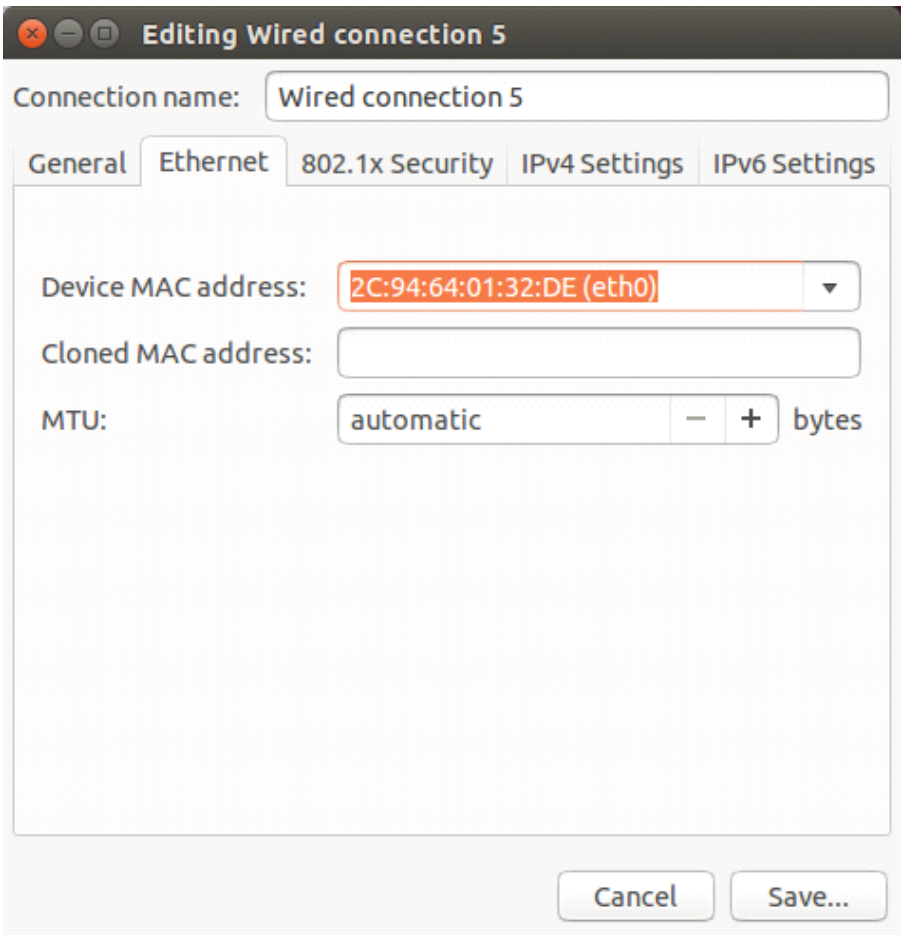
B. SSH连接修复

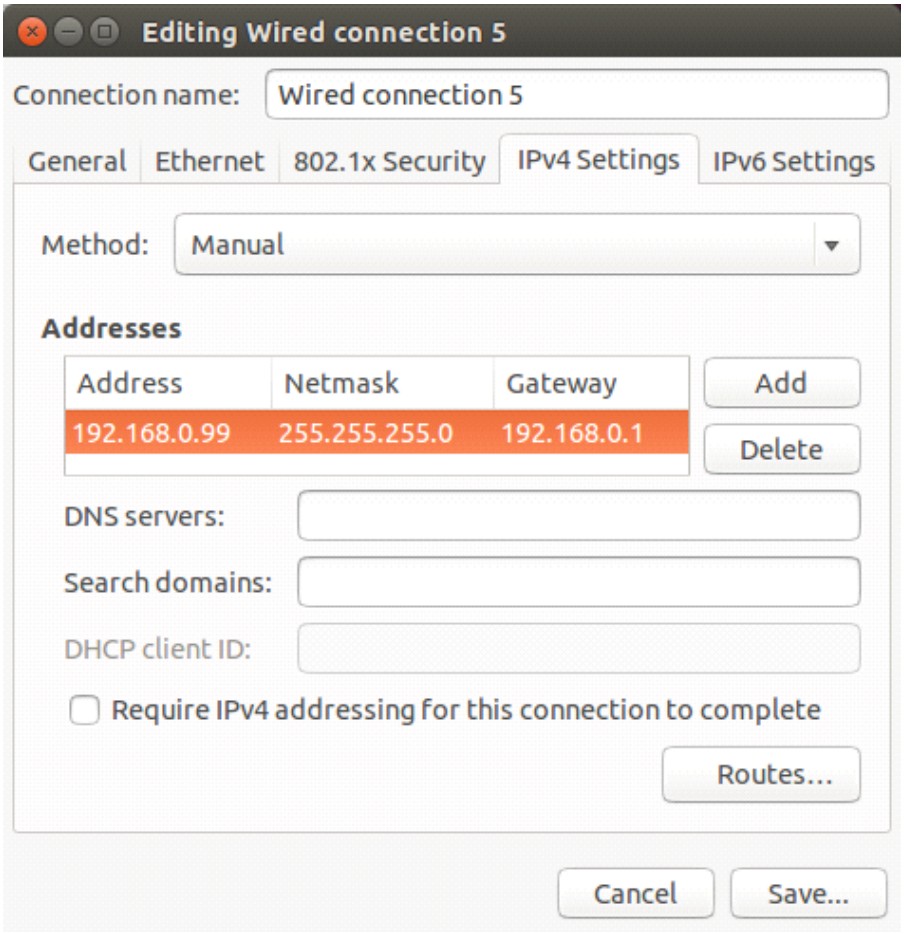
1. 修改文件，ECMenv_rc.sh //只有在端口发生变化时需要修改，装机完成后，初始值为eth1

   原先设置eth0为总线端口，eth1为ssh调试口，如果原先的ssh端口被用作总线端口（ifconfig 中无eth1设备），则需修改下图选中部分，重新配置SSH所在端口，修改为ifconfig中存在的端口，此处改为eth0



2. 打开网络设置页，找到SSH对应的端口（括号中的eth?要对应ECMenv_rc.sh中设置），修改为Manel,给定IP：192.168.0.99



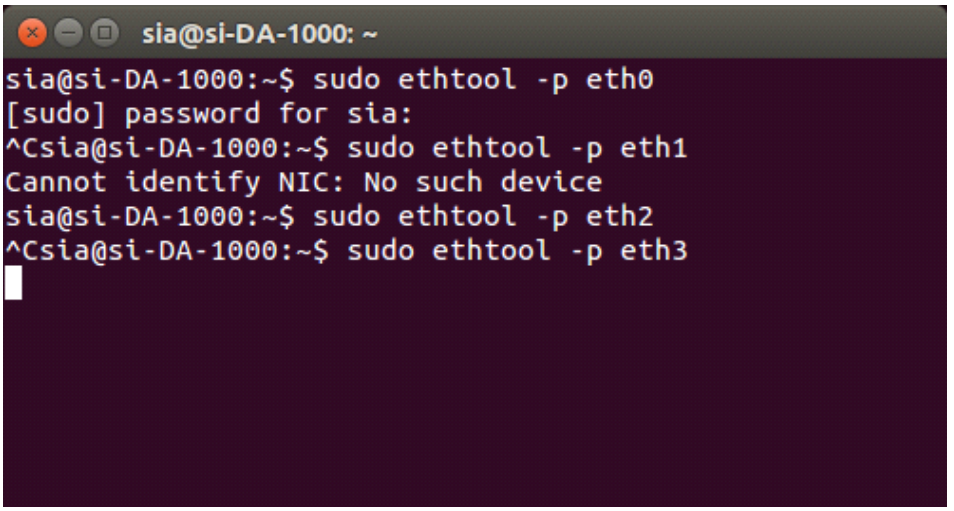


3. 重新配置SSH-SERVER

   >sudo dpkg-reconfigure openssh-server

   >sudo /etc/init.d/ssh restart

4. 找打物理位置，连接到开发机



   测试之前，请先确认IP是否为192.168.0.99

   >Ifconfig eth?

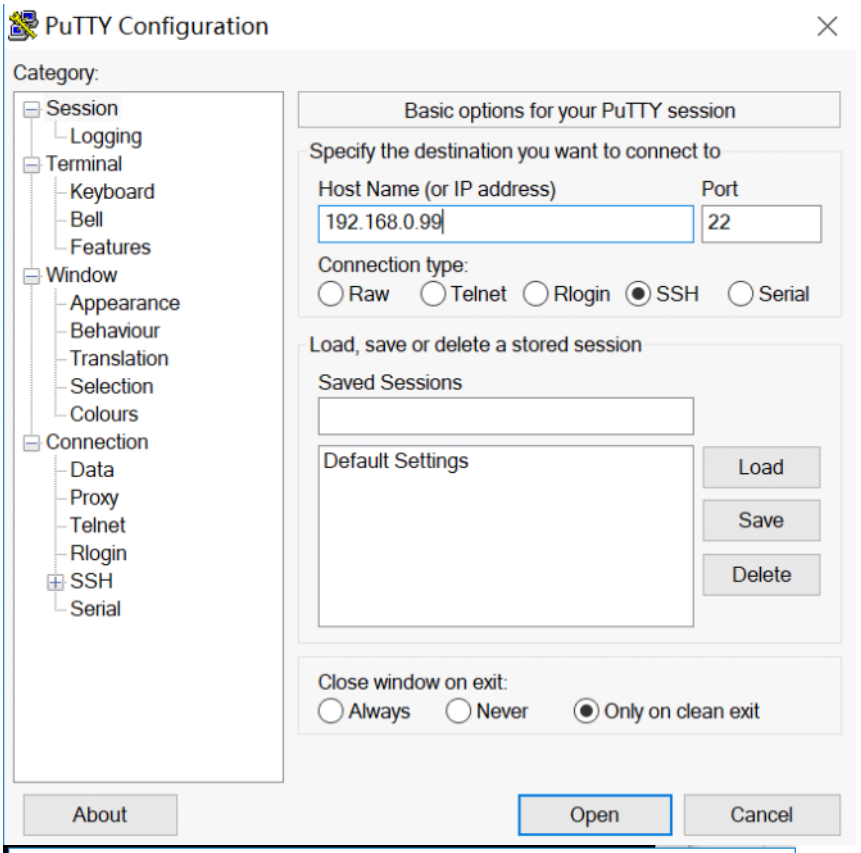
5. 开发机SSH访问工控机测试

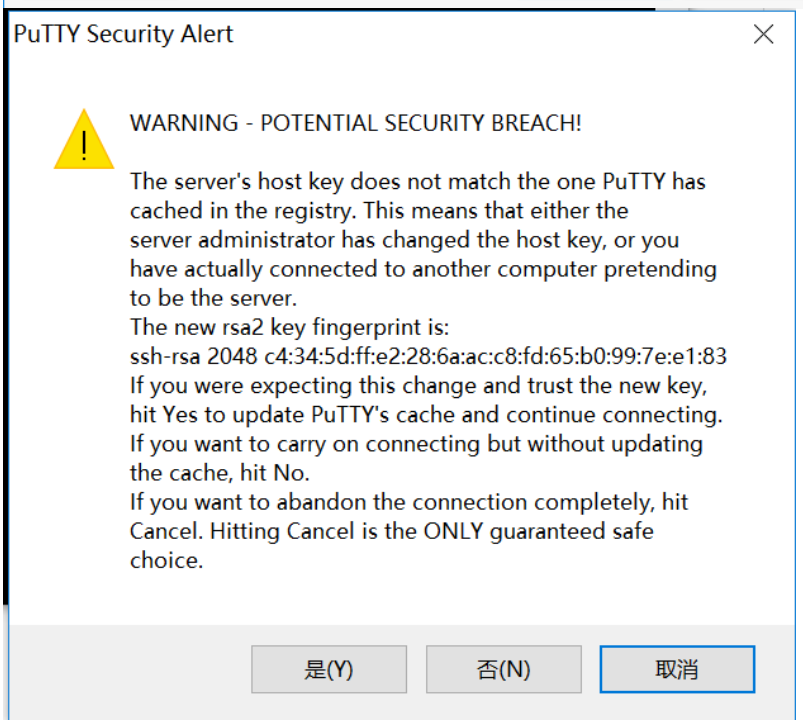
   Windows用PuTTY

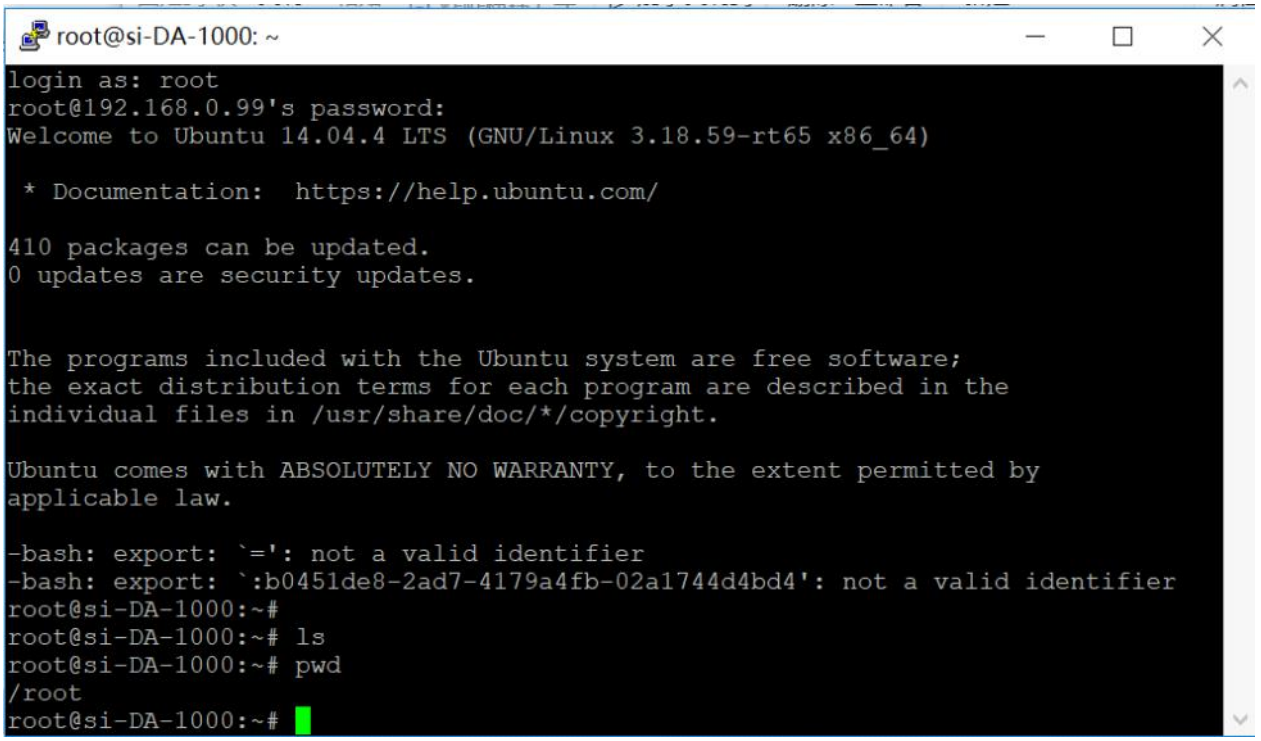
   Linux 在命令行执行>ssh root@192.168.0.99

   第一次连接都会弹出提示，选择或输入yes即可。

   以Windows为例：

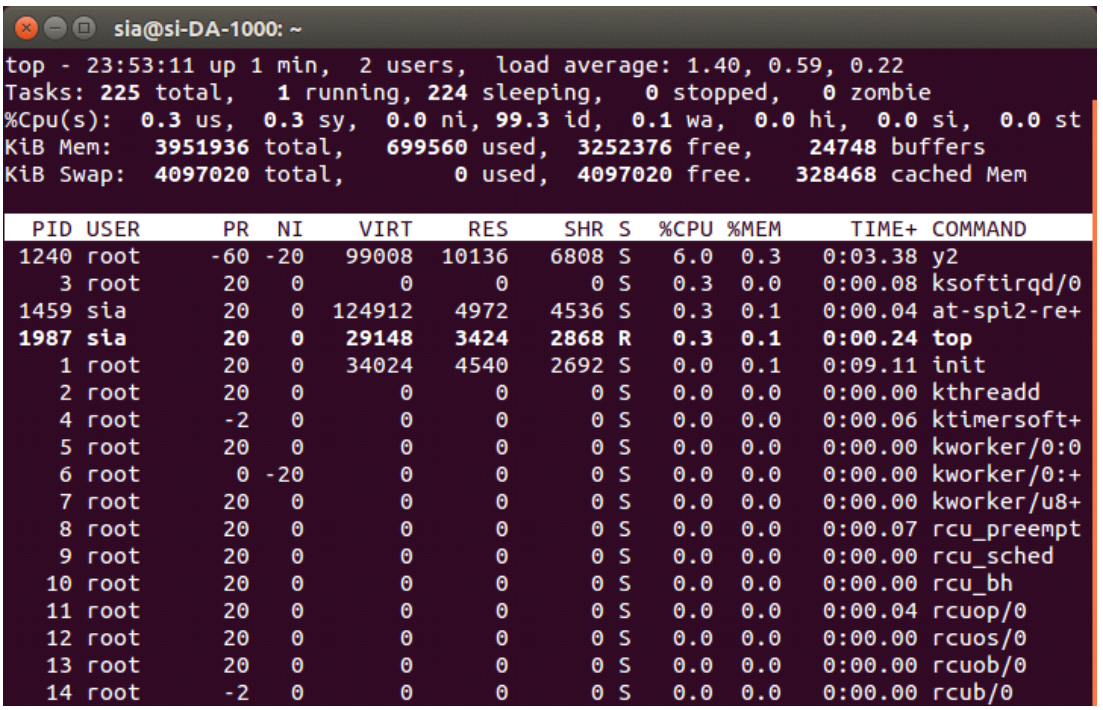

PuTTY Configuration
Category:
Session
Logging
Terminal
Keyboard
Bell
Features
Window
Appearance
Behaviour
Translation
Selection
Colours
Connection
Data
Proxy
Telnet
Rlogin
SSH
Serial
Basic options for your PuTTY session
Specify the destination you want to connect to
Host Name (or IP address)
Port
192.168.0.99
22
Connection type:
Raw
Telnet
Rlogin
SSH
Serial
Load, save or delete a stored session
Saved Sessions
Default Settings
Load
Save
Delete
Close window on exit:
Always
Never
Only on clean exit
About
Open
Cancel


PuTTY Security Alert
WARNING - POTENTIAL SECURITY BREACH!
The server's host key does not match the one PuTTY has cached in the registry. This means that either the server administrator has changed the host key, or you have actually connected to another computer pretending to be the server.
The new rsa2 key fingerprint is:
ssh-rsa 2048 c4:34:5d:ff:e2:28:6a:ac:c8:fd:65:b0:99:7e:e1:83
If you were expecting this change and trust the new key, hit Yes to update PuTTY's cache and continue connecting.
If you want to carry on connecting but without updating the cache, hit No.
If you want to abandon the connection completely, hit Cancel. Hitting Cancel is the ONLY guaranteed safe choice.
是(Y)
否(N)
取消



到此，说明SSH功能OK

C. 重启系统，再此测试



执行>top,看到y2持续在，即总线OK

SSH测试，再次连接即可。不会弹出确认提示。