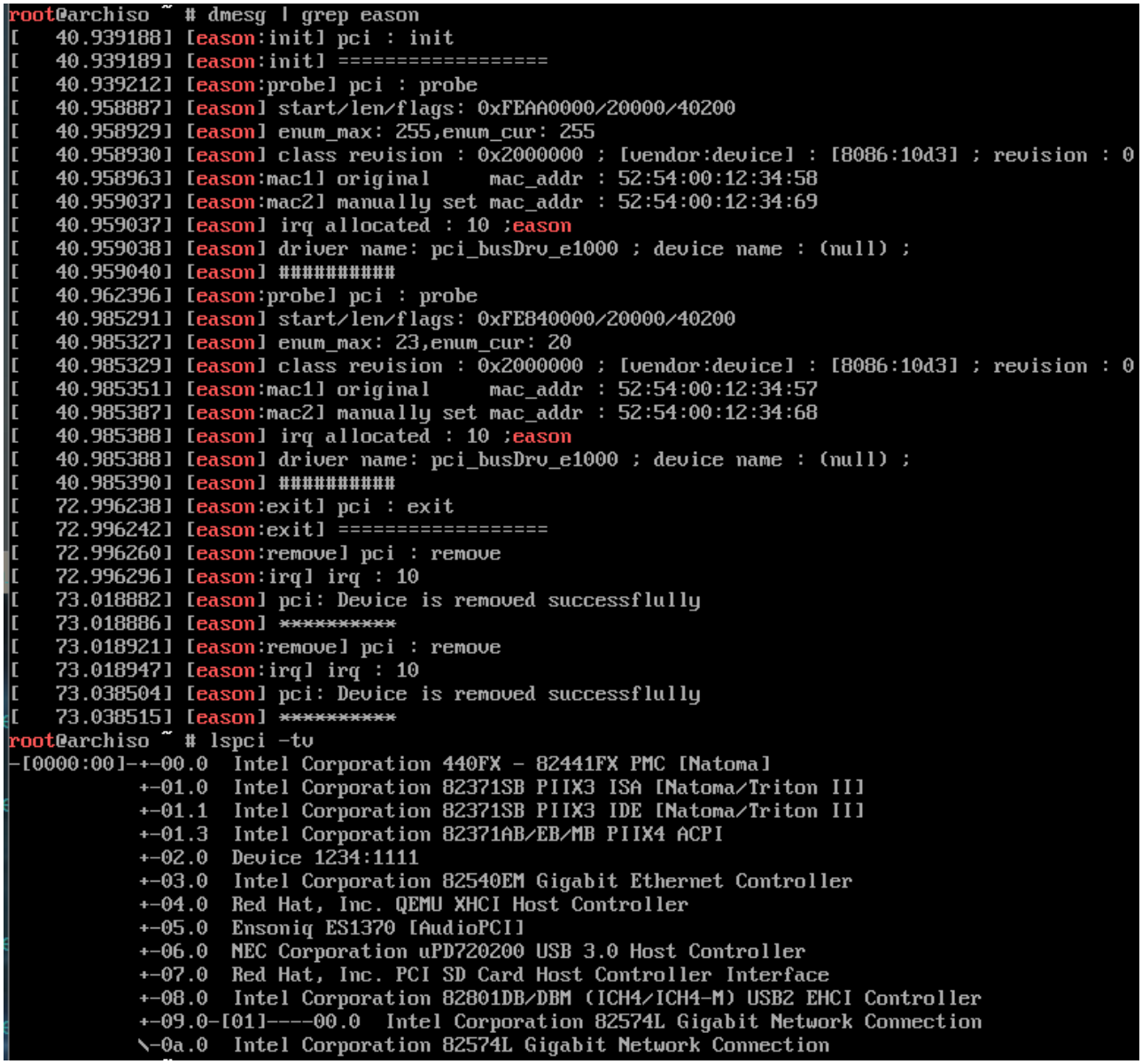
(1/3) 模拟x86设备运行pcie设备驱动，读取英特尔的82540EM和82574L千兆以太网卡信息

模拟x86设备，添加82540EM和82574L千兆以太网卡，以测试pcie总线驱动。

- (01)对82540EM千兆以太网卡：读取类/供应商/设备ID，从EEPROM读取默认MAC地址。
- (02)对82574L千兆以太网卡：读取类/供应商/设备ID，读取MAC，并通过写寄存器方式更改MAC地址；



(2/3) 模拟 ARM Cortex-M3 芯片

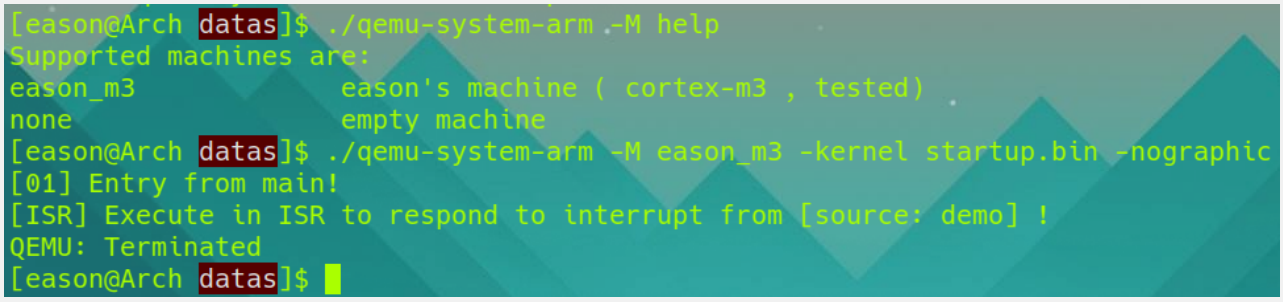
(01) 查询支持的设备列表（仅保留eason_m3设备/开发板）：

```
[eason@Arch]$ ./qemu-system-arm -M help    Supported machines are:
  eason_m3 eason's machine ( cortex-m3 , tested)
  none empty machine
```

(02) 启动qemu-system-arm仿真eason_m3设备，运行demo程序（startup.bin）

- 备注：目前仅参考PCIE设备linux驱动的数据结构，从程序架构上优化了芯片SOC数据结构。

```
[eason@Arch]$ ./qemu-system-arm -M eason_m3 -kernel startup.bin -nographic
  [01] Entry from main!
  [ISR] Execute in ISR to respond to interrupt from [source: demo] !
  QEMU: Terminated (按下快捷键退出QEMU)
```



(3/3) 模拟 RISCV MCU:: rv32imac 芯片

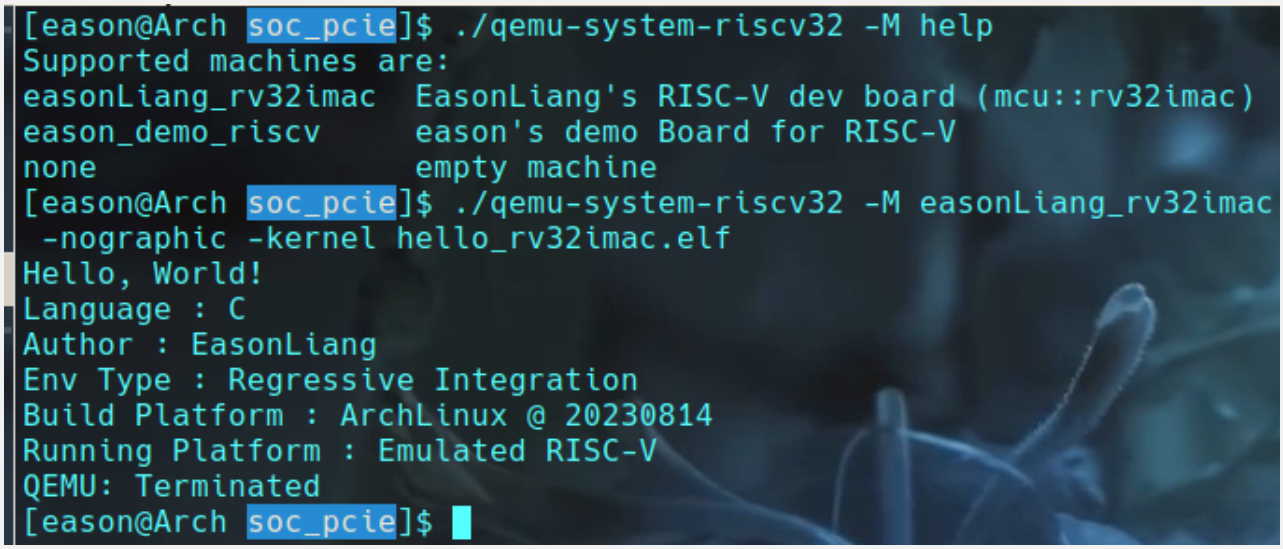
(01) 查询支持的设备列表（仅保留easonLiang_rv32imac和eason_demo_riscv的设备/开发板）：

```
[eason@Arch soc_pcie]$ ./qemu-system-riscv32 -M help
  Supported machines are:
  easonLiang_rv32imac EasonLiang's RISC-V dev board (mcu::rv32imac)
  eason_demo_riscv eason's demo Board for RISC-V
  none empty machine
```

(02) 启动qemu-system-riscv32仿真easonLiang_rv32imac设备，运行hello_world程序（hello_rv32imac.elf）

```
[eason@Arch soc_pcie]$ ./qemu-system-riscv32 -M easonLiang_rv32imac -nographic -
kernel hello_rv32imac.elf
  Hello, World!
  Language : C
  Author : EasonLiang
  Env Type : Regressive Integration
  Build Platform : ArchLinux @ 20230814
```

> Running Platform : Emulated RISC-V



(03) 为easonLiang_rv32imac开发板编译应用程序：

```
riscv64-unknown-elf-gcc -march=rv32imac -mabi=ilp32 -mcmodel=medlow -ffunction-sections
-fdata-sections \ --specs=nano.specs -O0 -g -nostartfiles -nostdlib \ -T
sdk_easonLiang/rv32imac/hello.lds -L sdk_easonLiang/rv32imac/libs/ -Wl,--gc-sections \
hello_rv32imac.c -Wl,--start-group -lc -lgcc -lm -lmetal -lmetal-gloss -Wl,--end-group -
o hello_rv32imac.elf
```