# 8.ADC

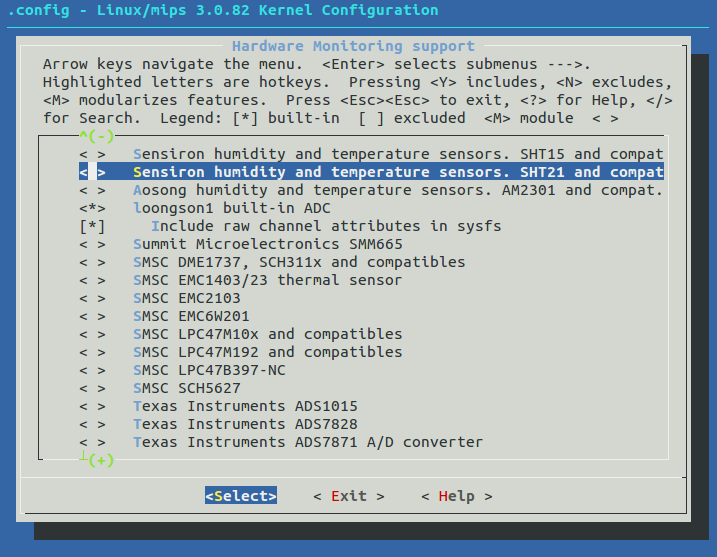
## 8.1 配置ADC驱动

Devices Drivers --->

<\*> Hardware Monitoring support --->

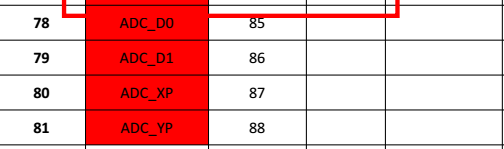
<\*> loongson1 built-in ADC

配置如下选项。



## 8.2硬件管脚分配

使用管脚GPIO85，86，87，88



## 8.3应用测试

重启系统后，进入ADC目录。一共有4个adcN\_raw（N=0~3），分别对应ADC\_D0,ADC\_D1, ADC\_XP,ADC\_YP

[root@Loongson:/]#cd /sys/class/hwmon/hwmon0/device/ [root@Loongson:/sys/devices/platform/ls1x-hwmon]#ls

adc0\_raw adc2\_raw driver in0\_input modalias subsystem

adc1\_raw adc3\_raw hwmon in0\_label power uevent

读取ADC\_D0(GPIO85)输入的值，D0悬空。

[root@Loongson:/sys/devices/platform/ls1x-hwmon]#cat adc0\_raw

977

将开发板上D0脚接入GND，再执行命令

[root@Loongson:/sys/devices/platform/ls1x-hwmon]#cat adc0\_raw //D0管脚接GND

0

将开发板上D0脚接入3V3，再执行命令

[root@Loongson:/sys/devices/platform/ls1x-hwmon]#cat adc0\_raw //D0管脚接GND3V3

1023

其它ADCN 可同样操作。

## 8.4应用层编程

应用层使用系统调用即可以控制。

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Loongson1s1c hwmon-adc driver test

device node is "/sys/class/hwmon/hwmon0/device/adcN\_raw"

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/\*testadc.c\*/

#include <stdio.h>

#include <stdlib.h>

#include <unistd.h>

#include <sys/fcntl.h>

int main(int argc, char \*argv[])

{

int fd = -1, ret;

int adc\_ch, value;

char buffer[5];

char dev\_name[50];

if ( argc < 2 )

{

printf("usage adc\_test chanel(0~7)\n");

exit(1);

}

else

{

adc\_ch = atoi(argv[1]);

}

if ( (adc\_ch >= 0) && (adc\_ch <= 7) )

{

sprintf(dev\_name, "/sys/class/hwmon/hwmon0/device/adc%d\_raw\0", adc\_ch);

printf("dev name %s\n", dev\_name);

if ((fd = open(dev\_name, O\_RDONLY)) < 0)

{

perror("open error");

exit(1);

}

}

else

{

printf("adc\_ch is (0~7)\n");

exit(1);

}

ret = read(fd, buffer, 4);

if (ret < 0)

{

perror("read error");

exit(1);

}

value = atoi(buffer);

printf("ADC %d current value is %d\n", adc\_ch, value);

close(fd);

return 0;

}

编译后，下载到开发板，运行命令：./testadc 0， 后面0表示使用ADC\_D0。

[root@Loongson:/]#./testadc 0

dev name /sys/class/hwmon/hwmon0/device/adc0\_raw

ADC 0 current value is 0 //D0管脚接GND

[root@Loongson:/]#./testadc 0

dev name /sys/class/hwmon/hwmon0/device/adc0\_raw

ADC 0 current value is 1023　　//D0管脚接3V3