

Snom PA1 BSP (Board support package) for Door phone firmware (DP)

Revision history

V1_0 Sep-18-2009

- **First release**

V1_1 Jan-18-2010

- **Added DTMF remote side control over IO pins**
- **Firmware release:** snomPA1DP-8.3.7-SIP-f.bin

Introduction

This BSP explores features of snom PA1 using door phone firmware. Door phone firmware is not delivered with standard snom PA1 device and has to be downloaded from snom download web page.

Important notice: Before changing the PA1 firmware you should get the IP address of your snom PA1 box in your network with standard PA1 firmware already delivered in the box (for more help take a look in the short user guide delivered with the PA1 box). After you get IP address of your snom PA1 in your network you can download the door phone firmware. Please don't forget the IP address of the snom PA1 box as the IP/reset button in DP application becomes dial button and there is no quick way to get the IP address. Without knowing the IP address you can't reach snom PA1 web interface.

In case you lose the IP address of the snom PA1 box find help in Trouble shooting chapter.

DP firmware brings 3 differences with the respect to the Public announcement firmware (PA)

1. IP/reset button becomes dial button.
2. On the snom PA1 web page/preferences, there is new "Number to dial" field to enter dial number which will be called by pressing dial button on snom PA1 box.
3. Alternatively 4 IO pins can also be controlled remotely with DTMF signals from another phone.

All other features including LED signaling during firmware downloading remain the same and refer to the snom PA1 short user guide

Notice: snom PA1 does not include the microphone and the speaker. For the external microphone you could use the "Mic in" jack for microphone input. For the external speaker you could use the "Line out" connector or "Speaker" connector.

1. Connector explanation

1.1 VDD and I/O 2 connectors

VDD		IO2			
VDD_3V3	GND	Pin 3	Pin 4	VDD_12V	GND
Note		Web interface or remote DTMF		power	

- Pin 3 and Pin 4 are two configurable pins (off (default) or on) on the PA1 web interface:
 - Get IP address of the board
 - Go to the board web page
 - Select Preferences
 - Select value on or off for the Pin 3 or Pin 4
 - Press Save button on the bottom of the page to save the changes
 - The pin value on the IO2 will change after the save button has been pressed

Complete power consumption of the snom PA1 is 9.7W (POE or external power supply scenario). The power should be correctly distributed between Digital board power (DBP), Audio board power ABP and External board power EBP for 3.3V and 12V (EBP_3V3, EBP_12V).

	Maximum Power	Maximum Current	Comment
DBP (5V)	4W	800mA@5V	(2 linear low voltage drop regulators make 3.3V and 1.8V)
ABP (12V)	4W	1500mA@80hm	One step up 5V – 12V converter Max audio input signal for U14 should not exceed
EBP_3V3	0.5W	150mA	Can be used to supply external board
EBP_12V	1W	80mA	Typical current to open an electric-lock
Total	9.5W		

Total output power on 12V is 5W and can be combined for ABP and EBP_12V.

1.2 KBD connector (Keyboard connection)

1. (Schematics 2110_SNOM_PA1_V38_S01_ADD_KBD_01.pdf)

Use connection matrix from the schematic above to make snom PA1 keyboard)

KBD							
KEY0	KEY1	KEY2	KEY3	KEY4	KEY5	KEY6	KEY7

Keyboard module is automatically enabled in the PA1 firmware and door phone firmware

1.3 I/O 1 connector (CON13)

I/O 1						
GAIN1	GAIN0		PIN 1	PIN2	SCL	SDA
External gain control for the audio amplifier (READ ONLY)			Web interface or remote DTMF		I2C BUS	

- Pins GAIN1 and GAIN0 are read only pins, disabled in snom PA1
- Pin 1 and Pin 2 are two configurable pins (off (default) or on) on PA1 web interface:
 - Get IP address of the board
 - Go to the board web page
 - Select Preferences page
 - Select value on or off for the Pin 1 or Pin 2
 - Press Save button on the bottom of the page to save the changes
 - The pin value on the I/O 1 will change after the save button has been pressed
- Pins GAIN1, GAIN0 are not available in DP firmware
- SCL and SDA are the part of I2C BUS. These signals are not available in DP firmware

2. REMOTE DTMF control for IO pins

IO pins on PA1 controlled with DTMF out-band signals from another phone.

PIN1: on: 1#, off 1*

PIN2: on: 2#, off 2*

PIN3: on: 3#, off 3*

PIN4: on: 4#, off 4*

Important notes:

- On is logical 1 (3.3V); Off is logical 0 (~ 0V)
- All 4 outputs are equipped with protection circuits against static discharge, giving them 2KV ESD protection
- 4 IO Pins are 5V tolerant
- Each IO pin can source max 25 mA

3. Connector part numbers for snom PA1 box

Molex

HDR 2WAY MOLEX - 22-05-70 25 , Farnell No. 9979670
HDR 4WAY MOLEX - 22-05-70 45 , Farnell No. 9979697
HDR 6WAY MOLEX - 22-05-70 65 , Farnell No. 9979719
HDR 8WAY MOLEX - 22-05-70 85 , Farnell No. 9979727

CRIMP HOUSING 2WAY MOLEX – 503750 23 , Farnell No. 9979549
CRIMP HOUSING 4WAY MOLEX - 503750 43 , Farnell No. 9979565
CRIMP HOUSING 6WAY MOLEX - 503750 63 , Farnell No. 9979581
CRIMP HOUSING 8WAY MOLEX - 503750 83 , Farnell No. 9979590

4. Trouble shooting

IP address lost

- Get snom serial box for debug purposes and prepare serial (UART) console on your computer (communication speed 115K, 8 bits, 1 stop bit, hardware none)
- Connect the serial box between computer and “EXT” connector of PA1
- Power the PA1 box and stop booting it’s system by pressing ENTER key on the pc keyboard
- Enter the commands:

```
setenv addmisc 'setenv bootargs $(bootargs) console=ttyS0,$(baudrate)
ethaddr=$(ethaddr) panic=1'
```

```
saveenv
```

```
reset
```

- Change the speed of your serial console to 9600 Baud

- Do power reset of the Snom PA1 box. Ignore junk charades on the display until you get IP address received from the network (or used static IP address)
- Return the speed of your serial console to 115000 Baud
- Remove the serial cable and use given IP address to reach web page of snom PA1 box