Recording of physiological signals

The resulting logfiles can be found in the directory c:\MedCom\log
Open NT Startmenu:
Item "Run..."
Open: telnet mpcu
VxWorks login: meduser
Password: numaris4

After input of the correct password, the VxWorks shell is entered.
This login is not longer needed for VB software versions.

There are some useful inputs:
ESC and **-** simultanously: scroll among the last inputs
h shows the last inputs (Copy and paste via TELNET toolbar).
Start/ Stop the signal logging

-> **fMenu**

++ Menu V1.2 ++++
+ / MPCU Applikations Menu
++
+
+ 1 - BGT-MMC Pruefung ...
+ 2 - PCI Karte/Treiber ...
+ 3 - Kommunikation zu den DSPs ...
+ 4 - PMU ...
+ 5 - Trace Utilities ...
+ 6 - VxWorks System Info ...
+
++ h=Help ++++
Select number [1-6]: **4**
++ Menu V1.2 ++++
+ /4/ PMU
++
+
+ 1 - Kommandos zum Frontend ...
+ 2 - Debugausgaben steuern ...
+ 3 - Signal Logging ...
+
++ h=Help ++++
Select number [1-3]: **3**
++ Menu V1.2 ++++
+ /4/3/ Signal Logging
++
+
+ 1 - start ECG
+ 2 - stop ECG
+ 3 - start RESP
+ 4 - stop RESP
+ 5 - start PULS
+ 6 - stop PULS
+ 7 - start EXT
+ 8 - stop EXT
+ 9 - start all signals
+ 10 - stop all signals
+
++ h=Help ++++
Select number [1-10]: **1**

Enter log file name (without path and extension): **test1101**
++ Menu V1.2 ++++
+ /4/3/ Signal Logging
++
+
+ 1 - start ECG
+ 2 - stop ECG
+ 3 - start RESP
+ 4 - stop RESP
+ 5 - start PULS
+ 6 - stop PULS
+ 7 - start EXT
+ 8 - stop EXT
+ 9 - start all signals
+ 10 - stop all signals
+
++ h=Help ++++
Select number [1-10]: **2 (After the session: don't forget to stop the logging, please !)**
++ Menu V1.2 ++++
+ /4/3/ Signal Logging
++
+
+ 1 - start ECG
+ 2 - stop ECG
+ 3 - start RESP
+ 4 - stop RESP
+ 5 - start PULS
+ 6 - stop PULS
+ 7 - start EXT
+ 8 - stop EXT
+ 9 - start all signals
+ 10 - stop all signals
+
++ h=Help ++++
Select number [1-10]: **ex (leave the test menu)**
value = 0 = 0x0
->
Leave the VxWorks shell **(don't forget this after the logging session, please)**:

-> logout

Your connection has been terminated.

Some comments on ECG data files (subject to change)

The stored data is a string of numbers that looks like:

8 1 2 40 280 2292 2300 2306 ..... followed by a tail of average values etc..

The 1st NUMBER encodes the method

1. lPmuECGModePub:

```
enum PhysioMethod
 {
  METHOD_NONE       = 0x01,
  METHOD_TRIGGERING  = 0x02,
  METHOD_GATING      = 0x04,
  METHOD_RETROGATING = 0x08,
  METHOD_SOPE       = 0x10,
  METHOD_ALL        = 0x1E
 };
```

The 2nd NUMBER encodes the ArrhythmiaDetection

2. iPmuADPub

```
enum ArrhythmiaDetection
{
  AD_NONE        = 0x01,
  AD_TIMEBASED    = 0x02,
  AD_PATTERNBASED = 0x04
};
```

The 3rd NUMBER encodes the signal used

3. iPmuHighPrioTriggerSignal (source of beep)

```
enum PhysioSignal
{
        SIGNAL_NONE       = 0x01,
        SIGNAL_EKG        = 0x02,
        SIGNAL_PULSE      = 0x04,
        SIGNAL_EXT        = 0x08,
        SIGNAL_CARDIAC    = 0x0E,  /* the sequence usually takes this */
        SIGNAL_RESPIRATION = 0x10,
        SIGNAL_ALL        = 0x1E,
};
```

The 4th & 5th NUMBER encode gate open and close times in tick-time unit.

current tick time is 2.5 ms (see example values above)

```
//    4. ulECGGateOnCountPub  ( i.e. gate opens 100 ms after R wave)
//    5. ulECGGateOffCountPub  (i.e. cate closes 700 ms after R wave)
```

All following numbers are signal values as function of sampling interval. The sample rate for the ECG/Cardiac and external signal is 400 Hz. The special value 5000 is used to mark a trigger on signal. The value 6000 is a trigger off mark.