PD Sensor |

PD Sensor Interface over ethernet. Set Amplification

DSP Bindings. LU Code Relations Functions

ConsoleMemMgr.c file shows measured value from the DSP came from ADC->FPGA->PCIe .

SharedMemMgr.c

Analog Data is transferred to the CPU in an gloabl data object g_pAISharedMem.

global.h

```
extern volatile dsAISharedMemory *g_pAISharedMem;
```

Code below looks like gathering data from DSP into g_pAISharedMem instance.

SharedMemMgr.c

```
void InitSharedMemory(U8 *pCMemVAddr)
{
        g_pAISharedMem          = (dsAISharedMemory*)pCMemVAddr;
        g_pIOSharedMem          = (dsIOData*)(pCMemVAddr + DDR_DIO_DATA_OFFSET);
        g_pLUAppSharedMem       = (dsLUAppSharedMemory*)(pCMemVAddr + DDR_LU_APP_DATA_OFFSET);
        g_pSTBSharedMem         = (ds61850SharedMemory*)(pCMemVAddr + DDR_STBP_DATA_OFFSET);
        // Clear
        memset((dsAISharedMemory*)g_pAISharedMem, 0x0, sizeof(dsAISharedMemory));
        memset((dsIOData*)g_pIOSharedMem, 0x0, sizeof(dsIOData));
        memset((dsLUAppSharedMemory*)g_pLUAppSharedMem, 0x0, sizeof(dsLUAppSharedMemory));
        memset((ds61850SharedMemory*)g_pSTBSharedMem, 0x0, sizeof(ds61850SharedMemory));
}
```

1. Somehow data packet from DSP assigned in to pCMemVAddr and casted to (dsAISharedMemory*) to g_pAISharedMem.

```
    int SharedMemMgr_MemCheck(void)
    {
            //Shared memory check.
            if(g_pAISharedMem == NULL)
            {
                    printf("[%s] ERR: Shared Memory is NULL!");
                    return -1;
```

```
        }
            else
            {
                    system("/apps/dspUnbind.sh");
                DspManager_DSPOn();
                usleep(3000*1000);      //wait DSP boot
        }
      ...
      ...
    }
```

ConsoleMemMgr.c function void CDM_Display_MEAS() shows `MEASMO` command data. Most data came from g_pAISharedMem object.

So preferebly this code is showing BCT values as below :

```
    ...
    ...
// BCT current display
        fReferenceAng[0]        = g_pAISharedMem->m_dsMeasValueData.m_dsBCTDataInfo.m_f32Ang[0];
        fReferenceAng[1]        = g_pAISharedMem->m_dsMeasValueData.m_dsBCTDataInfo.m_f32Ang[3];
        for(i=0; im_dsMeasValueData.m_dsBCTDataInfo.m_f32Ang[i]-fReferenceAng[i/3];
                if (fRelativeAng[i] > 0)
    {
                        fRelativeAng[i] -= 360.0;
                }
                printf(" BCT %1d  |  %8.2fA  %8.2fdeg", (i+1), g_pAISharedMem->m_dsMeasValueData.m_dsBCTDataInfo.m_f
        }
...
...
```

This function `void *Console_ProcessMain( void *arg )` in `ConsoleMemMgr.c` is the thread for diplaying the data from ADC. Which eventually called CDM_Routine(); The thread while loop is creating a delay as below:

```
while(!Console_ThreadExit)
        {
                //Console Display Routine
                // modified by symoon
```

```
                if (i==0) {
                        CDM_Routine();
                        i++;
                }
                else {
                        i++;
                        if (i>10000) {
                                i=0;
                        }
                }
                //Command Line Interface Routine
                CLI_Routine();
                sched_yield();
                //usleep(50000);    // added by symoon (unit is microsecond.)
        }
```

Cannot understand Relative Angle Measurement Calculation here.

```
1326    // BCT current display
1327    fReferenceAng[0]    = g_pAISharedMem->m_dsMeasValueData.m_dsBCTDataInfo.m_f32Ang[0];
1328    fReferenceAng[1]    = g_pAISharedMem->m_dsMeasValueData.m_dsBCTDataInfo.m_f32Ang[3];
1329    for(i=0; i<MAX_BCT_COUNT; i++) {
1330        VT100_goto(0,14+i);
1331        fRelativeAng[i] = g_pAISharedMem->m_dsMeasValueData.m_dsBCTDataInfo.m_f32Ang[i]-fReferenceAng[i/3];
1332        if (fRelativeAng[i] > 0) {
1333            fRelativeAng[i] -= 360.;
1334        }
1335        printf(" BCT %1d   |   %8.2fA   %8.2fdeg", (i+1), g_pAISharedMem->m_dsMeasValueData.m_dsBCTDataInfo.m_f32Mag[i], fRelativeAn
1336    }
```

The DSP Code Programmers Manuals

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