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#include    <stdio.h>
#include    <string.h>
#include    <stdlib.h>
#include    <math.h>

//mk_mea_rom.c 建立磁矩表
#define MEA1_GF0    5.0e-6
#define MEA1_GF1    1.0e-5
#define MEA1_GF2    2.0e-6
#define MEA1_GF3    5.0e-7
#define MEA1_GF4    2.0e-7

#define MEA2_GF0    1.0e-4
#define MEA2_GF1    1.5e-4
#define MEA2_GF2    1.5e-5
#define MEA2_GF3    7.0e-6
#define MEA2_GF4    2.5e-6

#define d_Lcl_MEA_MAX_V32    1.0273e5    //LOOKUP TABLE Velocity32 Normalization parameter (km/s) 30keV
#define d_Lcl_MEA_TBL_VF    0x27f//(d_Lcl_MEA_TBL_GF)    //vf, median    (1)
#define d_Lcl_MEA_TBL_GF    0xbf    //gf&gf2, median    (1)

char conv_VM_MEA(double*, double*, unsigned int, int, int, int);
char USHORTtoDBL(double*, unsigned short*, unsigned int);

int main(int argc, char *argv[])
{
    int i;
    long ltmp;

    unsigned short us_val[13];
    double    d_val[13];
    double    d_val_phys[13];

    if (argc != 14) {
        printf("Usage: ./***.exe 13 VM values (ex. 1111 2222 ... aaaa(hex))\n");
        exit(1);
    }

    for (i = 0; i < 13; ++i)    us_val[i] = (unsigned short) strtol(argv[i], NULL, 16);

    USHORTtoDBL(d_val, us_val, 13);

    conv_VM_MEA(d_val_phys, d_val, 13, 0, 0, 1);

    for (i = 0; i < 13; ++i) printf("%.2e ", d_val_phys[i]);
    printf("\n");
}

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[illegible]

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f_VMout[9] = f_VMin[ 9]/10*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[10]= f_VMin[10]/100*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[11]= f_VMin[11]/100*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[12]= f_VMin[12]/100*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
}

else {
f_VMout[0] = f_VMin[ 0]*10*0xffff/egf*dEoverE*dtheta*dazmth/Time;
f_VMout[1] = f_VMin[ 1]/10*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[2] = f_VMin[ 2]/10*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[3] = f_VMin[ 3]/10*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[4] = f_VMin[ 4]/10*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[5] = f_VMin[ 5]/10*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[6] = f_VMin[ 6]/10*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[7] = f_VMin[ 7]/10*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[8] = f_VMin[ 8]/10*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[9] = f_VMin[ 9]/10*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[10]= f_VMin[10]/100*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[11]= f_VMin[11]/100*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
f_VMout[12]= f_VMin[12]/100*0xffff/egf*dEoverE*dtheta*dazmth/Time/d_Lcl_MEA_TBL_VF*d_Lcl_MEA_TBL_GF;
}

}

//For WINDOWS LITTLE ENDIAN      !!while the MDP com. shall be by the big-endian
//  assuing:
//      double 64bit
//      USHORT 16bit
char USHORTtoDBL(double *pf_outbuf,      // [OUTPUT]
                unsigned short *pus_inbuf, // [INPUT] us_VM[10] in Little endian
                unsigned int len)         // [INPUT] 10 values for MIA
{
    int i;

    //螺迎菴
    union {
        double  d;//1(sign) + 11(exponent) + 52(fraction)
        unsigned char uc[8];
    } un_dat;

    for(i = 0; i < len; i++){

        //1(sign) + 5(exponent) + 10(fraction) -->
        //      1(sign) + 11(exponent) + 52(fraction)
        //1 + 11 + 52
        if (*pus_inbuf == 0x7c00) {      //+辟驛山
            un_dat.uc[7] = 0x7f;
            un_dat.uc[6] = 0xf0;
            un_dat.uc[5] = 0;
            un_dat.uc[4] = 0;
            un_dat.uc[3] = 0;
            un_dat.uc[2] = 0;

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        un_dat.uc[1] = 0;
        un_dat.uc[0] = 0;
    }
    else if (*pus_inbuf == 0xfc00) {          //-辟龔
        un_dat.uc[7] = 0xff;
        un_dat.uc[6] = 0xf0;
        un_dat.uc[5] = 0;
        un_dat.uc[4] = 0;
        un_dat.uc[3] = 0;
        un_dat.uc[2] = 0;
        un_dat.uc[1] = 0;
        un_dat.uc[0] = 0;
    }
    else if (*pus_inbuf == 0) {              //0
        un_dat.d = 0;
    }
    else {                                    //exp != 0 豁寢
        if ((*pus_inbuf >> 14) & 0x01) un_dat.uc[7] = (*pus_inbuf >> 8 & 0xc0);          //exp > 0x0f
        else un_dat.uc[7] = (*pus_inbuf >> 8 & 0xc0) | 0x3f; //exp <= 0x0f
        un_dat.uc[6] = (((*pus_inbuf >> 8 & 0x3f) << 2) | (((*pus_inbuf & 0xff) >> 6) & 0x03) );
        un_dat.uc[5] = (((*pus_inbuf & 0xff) & 0x3f) << 2);
        un_dat.uc[4] = 0;
        un_dat.uc[3] = 0;
        un_dat.uc[2] = 0;
        un_dat.uc[1] = 0;
        un_dat.uc[0] = 0;
    }
    *pf_outbuf++ = un_dat.d;
    pus_inbuf++;

}

return 1;

}

```