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2908A Addendum to DDS8m Manual.

This addendum covers operation of the Novatech Instruments, Inc. Model 2908A 100MHz Signal Generator. It should be used in conjunction with the Model DDS8m 100MHz Module Manual.

1. All serial commands shown in the DDS8m manual remain unchanged from the DDS8m.
2. The 2908A front panel has three BNC output receptacles. These are COSINE, SINE, and TTL. These replace the SMB output connectors on the DDS8m.
3. There are two LEDs on the front panel. POWER OK, when illuminated Green indicates that the 2908A has power applied and is turned on. The LED for CLOCK SOURCE is Green when the internal clock (see next item) is selected and is Red when the external clock is selected.
4. The rear panel holds two BNC receptacles, EXT CLK IN and CLK OUT. The CLOCK SOURCE switch is used to select the appropriate clock source. When the switch is in the INT position, the internal VCTCXO is chosen; in the EXT position, the front panel LED changes to Red and the signal applied to the EXT CLK IN is used as the master clock. Follow the scaling instructions in the DDS8m when using an external clock. (the program below can be used to find the appropriate values)
5. Also on the rear panel is an RS232 9-pin female connector for use with the Host Computer. The specifications and parameters are the same as in the DDS8m manual.

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/*
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    findf.c  calculates the input for a DDS8m/2908A 48-bit synthesizer
              using an external clock.  Outputs a frequency to 1uHz
              resolution. Send this value to the DDS8m/2908A using the
              'f0' command. The correct Hex value for 'kp' is calculated.
              Use the 's' command to store these values.

*/

#include <stdio.h>
#include <math.h>
main()
{
double base, Kp, Fo, Fi;
double pow();
double Err;
double Eff;
double IntF;
double Input;
double ceil();
double temp;
int KpH; /* kp in Hex */

base = pow(2.0,48.0);
IntF = base/1.0e6; /* default clock */

/* get user inputs first */
while(1){

printf("\n\nInput your external clock frequency (MHz): ");
scanf("%lf", &Fi);
if (Fi == 0.0) exit();

printf("\n\nInput the value for pll multiplier Kp: ");
scanf("%lf", &Kp);
if (Kp == 0.0) exit();

printf("\n\nInput the value for desired output frequency (MHz): ");
scanf("%lf", &Fo);
if (Fo == 0.0) exit();

Fi = 1.0e6*Fi; /* convert to Hertz */
Fo = 1.0e6*Fo; /* convert to Hertz */
Input = (IntF/(Kp*Fi) ) *Fo/1.0e6;
Eff = (Kp*Fi/base)*1.0e6;

temp = Input*1.0e12;
temp = ceil(temp)/1.0e12; /*rounds up*/
KpH = (int)Kp;
Err = (temp-Input)/Input;

printf("Send these commands to the DDS8m:\n");
printf("\nKp %0.2x\n",KpH);
printf("F0 %2.12lf\n",Input);
printf("\n\nFractional Error: %2.2le, Effective Resolution, uHz %2.3lf\n", Err,Eff);
}}

```