N=7*

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1 N=7 FFT module

A FORTRAN implementation of a length-7 FFT module to be used in a Prime Factor Algorithm program or other FFT program. In Place version.

```
    C
    DATA  C71, C72  / -1.16666667,-0.79015647 /
    DATA  C73, C74  /  0.055854267, 0.7343022 /
    DATA  C75, C76  /  0.44095855,-0.34087293 /
    DATA  C77, C78  /  0.53396936, 0.87484229 /
C
C-----------------WFTA N=7--------------------------
C
107 R1 = A(2) + A(7)
    R6 = A(2) - A(7)
    S1 = B(2) + B(7)
    S6 = B(2) - B(7)
    R2 = A(3) + A(6)
    R5 = A(3) - A(6)
    S2 = B(3) + B(6)
    S5 = B(3) - B(6)
    R3 = A(4) + A(5)
    R4 = A(4) - A(5)
    S3 = B(4) + B(5)
    S4 = B(4) - B(5)
C
    T3 = (R1 - R2) * C74
    T  = (R1 - R3) * C72
    R1 = R1 + R2 + R3
    A(1) = A(1) + R1
    R1   = A(1) + R1 * C71
    R2 =(R3 - R2) * C73
    R3 = R1 - T + R2
    R2 = R1 - R2 - T3
    R1 = R1 + T + T3
```

*Version 1.5: Sep 20, 2009 5:41 pm -0500
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```
    T = (R6 - R5) * C78
    T3 =(R6 + R4) * C76
    R6 =(R6 + R5 - R4) * C75
    R5 =(R5 + R4) * C77
    R4 = R6 - T3 + R5
    R5 = R6 - R5 - T
    R6 = R6 + T3 + T
C
    T3 = (S1 - S2) * C74
    T  = (S1 - S3) * C72
    S1 =  S1 + S2 + S3
    B(1) = B(1) + S1
    S1   = B(1) + S1 * C71
    S2 =(S3 - S2) * C73
    S3 = S1 - T  + S2
    S2 = S1 - S2 - T3
    S1 = S1 + T  + T3
    T  = (S6 - S5) * C78
    T3 = (S6 + S4) * C76
    S6 = (S6 + S5 - S4) * C75
    S5 = (S5 + S4) * C77
    S4 = S6 - T3 + S5
    S5 = S6 - S5 - T
    S6 = S6 + T3 + T
C
    A(2) = R3 + S4
    A(7) = R3 - S4
    A(3) = R1 + S6
    A(6) = R1 - S6
    A(4) = R2 - S5
    A(5) = R2 + S5
    B(4) = S2 + R5
    B(5) = S2 - R5
    B(2) = S3 - R4
    B(7) = S3 + R4
    B(3) = S1 - R6
    B(6) = S1 + R6
C
```

Figure. Length-7 FFT Module