

Sequences compiler for Vertex Board

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- Sequencer generates signals to drive the readout of the front-end cards
- Different sequences needed for different tasks
- Sequences can't be written by hand



**Software to produce sequences
in a comfortable way**

```
int main(void)
{
    // INIT compiler
    AsmInit();

    // Process AsmProgram
    AsmMain();

    // Compile
    AsmCompiler();

    // Output file
    AsmOutputMIF("asmlist.txt");
    AsmOutput    ("stdlist.txt");
}
```

```
// Assembler code example
```

```
AsmInit();
```

```
Asm.LABEL("labelstart");
```

```
Asm.DATAOUT("000000000", 0);
```

```
Asm.DATAOUT("000000001", 0);
```

```
Asm.GAP(0);
```

```
Asm.DATAOUT("000000000", 0);
```

```
Asm.DATAOUT("000000001", 0);
```

```
Asm.COUNT(0);
```

```
Asm.COUNT(1);
```

```
Asm.JMP("labelstart");
```

```
Seq.Init("1X1X101XX");
```

```
Seq.AbsTime(0);
```

```
Seq.Out(8, 1);
```

```
Seq.DeltaTime(50);
```

```
Seq.Generate(100);
```

Assembler program

Waveform description

```
// Compile
AsmCompiler();

// Output file
AsmOutputMIF("example.txt");

printf("program done\n");
return (0);
}
```

```
gcc -Wall Main.c AsmProg.c SeqComp.c AsmComp.c -o SeqComp
```

↓

```
./SeqComp
```

↓

```
# 0          -- 00000000 : 0000; -- LABEL Main
0000010000000000 -- 00000000 : 0400; -- JMPS NOP.00000000
# 1          -- 00000001 : 0000; -- LABEL labelstart
0000010000000001 -- 00000001 : 0401; -- JMPS NOP.00000001
1000000000000000 -- 00000002 : 8000; -- DATA 00000000, 0
1000000000000001 -- 00000003 : 8001; -- DATA 00000001, 0
0001000000000000 -- 00000004 : 1000; -- GAP 0
1000000000000000 -- 00000005 : 8000; -- DATA 00000000, 0
1000000000000001 -- 00000006 : 8001; -- DATA 00000001, 0
0001000000000001 -- 00000007 : 1001; -- GAP 1
1000000000000000 -- 00000008 : 8000; -- DATA 00000000, 0
0000100000000000 -- 00000009 : 0800; -- COUNT 0
0000101000000000 -- 0000000A : 0A00; -- COUNT 1
0000010000000001 -- 0000000B : 0401; -- JMP labelstart, SHORT
1001001100000000 -- 0000000C : 9300; -- DATA 1XXXXXXXX, 9
1001001101010101 -- 0000000D : 9355; -- DATA 1X1X101X1, 9
```