```
//*****************************************************************************
//  Test of SystemC Fixpoint Data Type
//
//  Licensing:
//    This code is distributed under GNU LGPL license.
//
//  Modified:
//    2012.07.03
//
//  Author:
//    Based on SCLive 3.0 and www.asic-world.com example codes
//
//    Modifications by Young W. Lim
//
//
//*****************************************************************************


#define SC_INCLUDE_FX

#include <systemc.h>
#include <iostream>
#include <iomanip>

// #define TEST1
#define TEST2

int sc_main(int argc, char * argv[]) {
  int i, j, k;


#ifdef TEST1
  sc_int<4> si, sj, sk;
  sc_uint<4> sui, suj, suk;

  sc_bv<8> bvi, bvj, bvk;

  sc_fixed<6, 4> fi, fj, fk;


  for (i=0; i< 16; i++) {
    si = i;
    sui = i;
    cout << "i=" << std::setw(4) << i << "  ";
    cout << "si=" << std::setw(4) << si << "  ";
    cout << "sui=" << std::setw(4) << sui << endl;
  }

  for (i=0; i<16; i++) {
    for (j=0; j<16; j++) {
      si = i;
      sj = j;
      sk = si * sj;
      sui = i;
      suj = j;
      suk = sui * suj;
      bvk = si * sj;
      cout << "(" << std::setw(3) <<  i << std::setw(4) <<  j << ")  ";
//      cout << "[" << std::setw(3) << si << std::setw(4) << sj << "]  ";
//      cout << "sk=" << std::setw(4) << sk << "  ";
//      cout << "si*sj=" << std::setw(4) << si*sj << "  ";
//      cout << "bvk=" << std::setw() << bvk << "   ";
      cout << "[" << std::setw(3) << sui << std::setw(4) << suj << "]  ";
      cout << "sk=" << std::setw(4) << suk << "  ";
      cout << "si*sj=" << std::setw(4) << sui*suj << "  ";
      cout << "bvk=" << std::setw(4) << bvk << "   ";
      cout << endl;

    }
  }
```

```
#endif


#ifdef TEST2
  sc_fixed<8,2> fi, fj, fk;
  sc_bv<8> bvi, bvj, bvk;



  for (i=0; i<4; ++i) {
    fi = 1. / pow(2, i);

    cout << "i=" << std::setw(4) << i << "   ";
    cout << "fi="  << std::setw(6) << fi << "   ";
    cout << "bvi="  << std::setw(8) << fi.to_string(SC_BIN) << "   ";
    cout << endl;

  }

    cout << endl;

    fi = 1 - pow(2, -7);
    cout << "fi="  << std::setw(6) << fi << "   ";
    cout << "bvi="  << std::setw(8) << fi.to_string(SC_BIN) << "   ";
    cout << endl;
    cout << endl;


  for (i=0; i<8; ++i) {
    fi = fi * pow(2, -1);

    cout << "fi="  << std::setw(6) << fi << "   ";
    cout << "bvi="  << std::setw(8) << fi.to_string(SC_BIN) << "   ";
    cout << endl;
  }

    cout << endl;

    fi = 1 - pow(2, -7);
    cout << "fi="  << std::setw(6) << fi << "   ";
    cout << "bvi="  << std::setw(8) << fi.to_string(SC_BIN) << "   ";
    cout << endl;
    cout << endl;


  for (i=0; i<8; ++i) {
    fi = fi >> 1;

    cout << "fi="  << std::setw(6) << fi << "   ";
    cout << "bvi="  << std::setw(8) << fi.to_string(SC_BIN) << "   ";
    cout << endl;
  }


#endif




  return (0);



}
```