#include <iostream>

#include "matrixmul.h"

using namespace std;

int main(int argc, char \*\*argv)

{

mat\_a\_t in\_mat\_a[3][3] = {

{11, 12, 13},

{14, 15, 16},

{17, 18 ,19}

};

mat\_b\_t in\_mat\_b[3][3] = {

{21, 22, 23},

{24, 25, 26},

{27, 28, 29}

};

result\_t hw\_result[3][3], sw\_result[3][3];

int err\_cnt = 0;

// Generate the expected result

// Iterate over the rows of the A matrix

for(int i = 0; i < MAT\_A\_ROWS; i++) {

for(int j = 0; j < MAT\_B\_COLS; j++) {

// Iterate over the columns of the B matrix

sw\_result[i][j] = 0;

// Do the inner product of a row of A and col of B

for(int k = 0; k < MAT\_B\_ROWS; k++) {

sw\_result[i][j] += in\_mat\_a[i][k] \* in\_mat\_b[k][j];

}

}

}

#ifdef HW\_COSIM

// Run the AutoESL matrix multiply block

matrixmul(in\_mat\_a, in\_mat\_b, hw\_result);

#endif

// Print result matrix

cout << "{" << endl;

//cout << setw(6);

for (int i = 0; i < MAT\_A\_ROWS; i++) {

cout << "{";

for (int j = 0; j < MAT\_B\_COLS; j++) {

#ifdef HW\_COSIM

cout << hw\_result[i][j];

// Check HW result against SW

if (hw\_result[i][j] != sw\_result[i][j]) {

err\_cnt++;

cout << "\*";

}

#else

cout << sw\_result[i][j];

#endif

if (j == MAT\_B\_COLS - 1)

cout << "}" << endl;

else

cout << ",";

}

}

cout << "}" << endl;

#ifdef HW\_COSIM

if (err\_cnt)

cout << "ERROR: " << err\_cnt << " mismatches detected!" << endl;

else

cout << "Test passed." << endl;

#endif

return err\_cnt;

}