

```

global
void saxpy kernel(int n, float a, "float*" x, "float*" y)
{
const int i = blockDim.x * blockIdx.x + threadIdx.x;

if (i < n) y[i] = a * x[i] + y[i];
}

void saxpy(int n, float a, "float*" x, "float*" y)
{
// set launch configuration parameters int block size = 256;
int grid size = (n + block_size - 1) / block_size;

// launch saxpy kernel

saxpy kernel<<< grid_size, block_size>>>(n, a, x, y);
}

```

(a) CUDA C

```

struct saxpy_functor
{
const float a;

saxpy_functor(float _a) : a(_a) {}

__host__ __device__
float operator()(float x, float y)
{
return a * x + y;
}
}

void saxpy(float a, device_vector<float> &x, device_vector<float>
&y)
{
// setup functor
saxpy_functor func(a);

// call transform
transform(x.begin(), x.end(), y.begin(), y.end(), func);
}

```

(b) Thrust