

Brook QuickSpec Errata

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Stream Declaration:

You must use the C typedef mechanism to declare stream types. For example:

```
typedef stream float floats;
floats foo;
```

Declaring a stream of arrays is a bit complicated due to C typing rules. You must typedef a stream of pointers and give the dimension of the array on the declaration line.

```
typedef stream floats **stream_of_floats_2d;
stream_of_floats_2d foo ``3,2``;
```

foo is a stream of array[3][2] floats.

Stream Functions:

Only the following functions are implemented:

```
void streamShape      ();
unsigned int streamGetLength ();
void streamSetLength ();
void streamZero       ();
void streamDomain     ();
void streamGroup      ();
void streamPush       ();
void streamCat        ();
void streamStencil    ();
void streamReplicate  ();
void streamCopy       ();
```

streamPush has been added as a stream operator. This function pushes a single element onto the tail of a stream.

```
streamPush (foo, &elem);
```

where foo is a stream and elem is a pointer to an element to be added. The contents of the pointer are copied to the stream.

Note about streamGroup:

The format for streamGroup is currently:

```
streamGroup(b, a, STREAM_GROUP_HALO, <dim>, ...);
```

Note that only HALO is implemented and it must be the third argument.

Note about streamStencil:

The format for streamStencil is currently: streamStencil(b, a, STREAM_STENCIL_CLAMP, <dim>, ...); Note that only CLAMP is implemented and it must be the third argument. Also elements are clamped to zero. There is currently no way to set this in the program. Stencils produce arrays which are indexed with numbers ≥ 0 . Therefore the middle element of the array corresponds with the center of the stencil. Negative array bounds is not longer supported.

Kernel arguments

Only the keywords out, outfixed, and reduce are recognized. mout and push are not implemented. Kernels should not explicitly return nor try to return any values.

Reductions:

There is no error checking on reductions. Currently you can pass any pointer to a kernel function and do whatever with it and the compiler will not complain. Reduction functions are also not implemented.

Global allocators:

The global allocators are not implemented. Use malloc and free for now.

C vs. C++:

The brook compiler only supports C syntax.