SiGMAL Model Compilation

Native Model Library (excerpt)

Hexahedron ***Model***:

Point A is undefined; Point B is undefined

Point C is undefined; Point D is undefined

Point E is undefined; Point F is undefined

Point G is undefined; Point H is undefined

top Face is boundedby A,B,C,D

bottom Face is boundedby E,F,G,H

front Face is boundedby A,D,H,E

right Face is boundedby A,B,F,E

left Face is boundedby D,C,G,H

back Face is boundedby B,C,G,F

Cuboid ***Model***:

TypeOf Hexahedron

height is undefined

width is undefined

depth is undefined

Point A is (height/2, width/2, depth/2)

Point B is (height/2, width/2, -depth/2)

Point C is (height/2, -width/2, -depth/2)

Point D is (height/2, -width/2, depth/2)

Point E is (-height/2, width/2, depth/2)

Point F is (-height/2, width/2, -depth/2)

Point G is (-height/2, -width/2, -depth/2)

Point H is (-height/2, -width/2, depth/2)

Cube ***Model***:

TypeOf Cuboid

length is undefined

height is length

width is length

depth is length

Source Code

UnitCube ***Model*:**

TypeOf Cube

length is 1

Compilation Step 1

The compiler begins by appending the code of any parent model, replacing the inheritance statement with the one in the parent code, if any. It then removes any redundant declarations and repeats.

UnitCube ***Model*:**

TypeOf Cuboid

length is 1

height is length

width is length

depth is length

UnitCube ***Model*:**

TypeOf Hexahedron

length is 1

height is length

width is length

depth is length

Point A is (height/2, width/2, depth/2)

Point B is (height/2, width/2, -depth/2)

Point C is (height/2, -width/2, -depth/2)

Point D is (height/2, -width/2, depth/2)

Point E is (-height/2, width/2, depth/2)

Point F is (-height/2, width/2, -depth/2)

Point G is (-height/2, -width/2, -depth/2)

Point H is (-height/2, -width/2, depth/2)

UnitCube ***Model***:

length is 1

height is length

width is length

depth is length

Point A is (height/2, width/2, depth/2)

Point B is (height/2, width/2, -depth/2)

Point C is (height/2, -width/2, -depth/2)

Point D is (height/2, -width/2, depth/2)

Point E is (-height/2, width/2, depth/2)

Point F is (-height/2, width/2, -depth/2)

Point G is (-height/2, -width/2, -depth/2)

Point H is (-height/2, -width/2, depth/2)

top Face is boundedby A,B,C,D

bottom Face is boundedby E,F,G,H

front Face is boundedby A,D,H,E

right Face is boundedby A,B,F,E

left Face is boundedby D,C,G,H

back Face is boundedby B,C,G,F

Compilation Step 2

Once the compiler reaches the top level model, it replaces variable names with their values.

UnitCube ***Model***:

height is 1

width is 1

depth is 1

Point A is (height/2, width/2, depth/2)

Point B is (height/2, width/2, -depth/2)

Point C is (height/2, -width/2, -depth/2)

Point D is (height/2, -width/2, depth/2)

Point E is (-height/2, width/2, depth/2)

Point F is (-height/2, width/2, -depth/2)

Point G is (-height/2, -width/2, -depth/2)

Point H is (-height/2, -width/2, depth/2)

top Face is boundedby A,B,C,D

bottom Face is boundedby E,F,G,H

front Face is boundedby A,D,H,E

right Face is boundedby A,B,F,E

left Face is boundedby D,C,G,H

back Face is boundedby B,C,G,F

UnitCube ***Model***:

Point A is (1/2, 1/2, 1/2)

Point B is (1/2, 1/2, -1/2)

Point C is (1/2, -1/2, -1/2)

Point D is (1/2, -1/2, 1/2)

Point E is (-1/2, 1/2, 1/2)

Point F is (-1/2, 1/2, -1/2)

Point G is (-1/2, -1/2, -1/2)

Point H is (-1/2, -1/2, 1/2)

top Face is boundedby A,B,C,D

bottom Face is boundedby E,F,G,H

front Face is boundedby A,D,H,E

right Face is boundedby A,B,F,E

left Face is boundedby D,C,G,H

back Face is boundedby B,C,G,F

Compilation Step 3

Finally, the code is converted into the target format.

Conversion into ASCII STL