XShaderCompiler

0.10 Alpha

Generated by Doxygen 1.8.11

Contents

1 Main Page **1**

2 Namespace Index **3**

2.1 Namespace List 3

3 Hierarchical Index **5**

3.1 Class Hierarchy 5

4 Class Index **7**

4.1 Class List 7

5 Namespace Documentation **9**

5.1 Xsc Namespace Reference 9

5.1.1 Detailed Description 11

5.1.2 Enumeration Type Documentation 11

5.1.2.1 InputShaderVersion 11

5.1.2.2 IntermediateLanguage 12

5.1.2.3 OutputShaderVersion 12

5.1.2.4 ReportTypes 13

5.1.2.5 ShaderTarget 13

5.1.3 Function Documentation 13

5.1.3.1 CompileShader(const ShaderInput &inputDesc, const ShaderOutput &output←Desc, Log ∗log=nullptr, Reflection::ReflectionData ∗reflectionData=nullptr) 13

5.1.3.2 DisassembleShader(std::istream &streamIn, std::ostream &streamOut, const AssemblyDescriptor &desc={}) 14

5.2 Xsc::ConsoleManip Namespace Reference 14

5.2.1 Detailed Description 15

5.2.2 Function Documentation 15

5.2.2.1 PushColor(long front, std::ostream &stream=std::cout) 15

5.2.2.2 PushColor(long front, long back, std::ostream &stream=std::cout) 15

5.3 Xsc::Reflection Namespace Reference 15

5.3.1 Detailed Description 16

6 Class Documentation 17

6.1 Xsc::AssemblyDescriptor Struct Reference 17

6.1.1 Detailed Description 17

6.2 Xsc::Reflection::BindingSlot Struct Reference 18

6.2.1 Detailed Description 18

6.3 Xsc::ConsoleManip::ColorFlags Struct Reference 18

6.3.1 Detailed Description 18

6.3.2 Member Enumeration Documentation 19

6.3.2.1 anonymous enum 19

6.4 Xsc::Extensions Struct Reference 19

6.4.1 Detailed Description 19

6.4.2 Member Enumeration Documentation 19

6.4.2.1 anonymous enum 19

6.5 Xsc::Formatting Struct Reference 20

6.5.1 Detailed Description 20

6.6 Xsc::IncludeHandler Class Reference 20

6.6.1 Detailed Description 21

6.6.2 Member Function Documentation 21

6.6.2.1 Include(const std::string &filename, bool useSearchPathsFirst) 21

6.7 Xsc::IndentHandler Class Reference 21

6.7.1 Detailed Description 22

6.8 Xsc::Log Class Reference 22

6.8.1 Detailed Description 22

6.9 Xsc::NameMangling Struct Reference 23

6.9.1 Detailed Description 23

6.9.2 Member Data Documentation 23

6.9.2.1 inputPrefix 23

6.9.2.2 namespacePrefix 23

6.9.2.3 outputPrefix 24

6.9.2.4 renameBufferFields 24

6.9.2.5 reservedWordPrefix 24
6.9.2.6 temporaryPrefix 24
6.9.2.7 useAlwaysSemantics 24
6.10 Xsc::Reflection::NumThreads Struct Reference 24
6.10.1 Detailed Description 25
6.11 Xsc::Options Struct Reference 25
6.11.1 Detailed Description 26
6.11.2 Member Data Documentation 26
6.11.2.1 autoBinding 26
6.12 Xsc::Reflection::ReflectionData Struct Reference 26
6.12.1 Detailed Description 27
6.13 Xsc::Report Class Reference 27
6.13.1 Detailed Description 28
6.13.2 Member Function Documentation 28
6.13.2.1 HasLine() const 28
6.14 Xsc::Reflection::SamplerState Struct Reference 29
6.14.1 Detailed Description 29
6.15 Xsc::ConsoleManip::ScopedColor Class Reference 29
6.15.1 Detailed Description 30
6.15.2 Constructor & Destructor Documentation 30
6.15.2.1 ScopedColor(long front, std::ostream &stream=std::cout) 30
6.15.2.2 ScopedColor(long front, long back, std::ostream &stream=std::cout) 30
6.15.2.3 ∼ScopedColor() 31
6.16 Xsc::ScopedIndent Class Reference 31
6.16.1 Detailed Description 31
6.17 Xsc::ShaderInput Struct Reference 31
6.17.1 Detailed Description 32
6.17.2 Member Data Documentation 32
6.17.2.1 extensions 32
6.17.2.2 includeHandler 32
6.17.2.3 secondaryEntryPoint 33
6.17.2.4 warnings 33
6.18 Xsc::ShaderOutput Struct Reference 33
6.18.1 Detailed Description 34
6.19 Xsc::StdLog Class Reference 34
6.19.1 Detailed Description 34
6.20 Xsc::VertexSemantic Struct Reference 34
6.20.1 Detailed Description 35
6.21 Xsc::Warnings Struct Reference 35
6.21.1 Detailed Description 35
6.21.2 Member Enumeration Documentation 35
6.21.2.1 anonymous enum 35

Index **37**

Chapter 1

Main Page

Welcome to the XShaderCompiler, Version 0.10 Alpha

Here is a quick start example:

```
#include <Xsc/Xsc.h>
#include <fstream>

int main()
{
    // Open input and output streams
    auto inputStream = std::make_shared<std::ifstream>("Example.hlsl");
    std::ofstream outputStream("Example.VS.vert");

    // Initialize shader input descriptor structure
    Xsc::ShaderInput inputDesc;
    {
        inputDesc.sourceCode     = inputStream;
        inputDesc.shaderVersion  = Xsc::InputShaderVersion::HLSL5
      ;
        inputDesc.entryPoint     = "VS";
        inputDesc.shaderTarget   = Xsc::ShaderTarget::VertexShader
      ;
    }

    // Initialize shader output descriptor structure
    Xsc::ShaderOutput outputDesc;
    {
        outputDesc.sourceCode    = &outputStream;
        outputDesc.shaderVersion =
      Xsc::OutputShaderVersion::GLSL330;
    }

    // Compile HLSL code into GLSL
    Xsc::StdLog log;
    bool result = Xsc::CompileShader(inputDesc, outputDesc, &log);

    // Show compilation status
    if (result)
        std::cout << "Compilation successful" << std::endl;
    else
        std::cerr << "Compilation failed" << std::endl;

    return 0;
}
```

Chapter 2

Namespace Index

2.1 Namespace List

Here is a list of all documented namespaces with brief descriptions:

Xsc
Main XShaderCompiler namespace 9
Xsc::ConsoleManip
Namespace for console manipulation 14
Xsc::Reflection
Shader code reflection namespace 15

Chapter 3

Hierarchical Index

3.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

- Xsc::AssemblyDescriptor 17
- Xsc::Reflection::BindingSlot 18
- Xsc::ConsoleManip::ColorFlags 18
- exception
  - Xsc::Report 27
- Xsc::Extensions 19
- Xsc::Formatting 20
- Xsc::IncludeHandler 20
- Xsc::IndentHandler 21
- Xsc::Log 22
  - Xsc::StdLog 34
- Xsc::NameMangling 23
- Xsc::Reflection::NumThreads 24
- Xsc::Options 25
- Xsc::Reflection::ReflectionData 26
- Xsc::Reflection::SamplerState 29
- Xsc::ConsoleManip::ScopedColor 29
- Xsc::ScopedIndent 31
- Xsc::ShaderInput 31
- Xsc::ShaderOutput 33
- Xsc::VertexSemantic 34
- Xsc::Warnings 35

Chapter 4

Class Index

4.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Xsc::AssemblyDescriptor
Descriptor structure for the shader disassembler 17
Xsc::Reflection::BindingSlot
Binding slot of textures, constant buffers, and fragment targets 18
Xsc::ConsoleManip::ColorFlags
Output stream color flags enumeration 18
Xsc::Extensions
Language extension flags. This is only supported, if the compiler was build with the 'XSC_EN↩
ABLE_LANGUAGE_EXT' macro 19
Xsc::Formatting
Formatting descriptor structure for the output shader 20
Xsc::IncludeHandler
Interface for handling new include streams 20
Xsc::IndentHandler
Indentation handler base class 21
Xsc::Log
Log base class 22
Xsc::NameMangling
Name mangling descriptor structure for shader input/output variables (also referred to as "varyings"), temporary variables, and reserved keywords 23
Xsc::Reflection::NumThreads
Number of threads within each work group of a compute shader 24
Xsc::Options
Structure for additional translation options 25
Xsc::Reflection::ReflectionData
Structure for shader output statistics (e.g. texture/buffer binding points) 26
Xsc::Report
Report exception class which contains a completely constructed message with optional line marker, hints, and context description 27
Xsc::Reflection::SamplerState
Static sampler state descriptor structure (D3D11_SAMPLER_DESC) 29
Xsc::ConsoleManip::ScopedColor
Helper class for scoped color stack operations 29
Xsc::ScopedIndent
Helper class for temporary indentation 31

Xsc::ShaderInput
Shader input descriptor structure 31
Xsc::ShaderOutput
Shader output descriptor structure 33
Xsc::StdLog
Standard output log (uses std::cout to submit a report) 34
Xsc::VertexSemantic
Vertex shader semantic (or rather attribute) layout structure 34
Xsc::Warnings
Compiler warning flags 35

Chapter 5

Namespace Documentation

5.1 Xsc Namespace Reference

Main XShaderCompiler namespace.

Namespaces

- ConsoleManip

  Namespace for console manipulation.
- Reflection

  Shader code reflection namespace.

Classes

- struct AssemblyDescriptor

  Descriptor structure for the shader disassembler.
- struct Extensions

  Language extension flags. This is only supported, if the compiler was build with the 'XSC_ENABLE_LANGUAGE_↩ EXT' macro.
- struct Formatting

  Formatting descriptor structure for the output shader.
- class IncludeHandler

  Interface for handling new include streams.
- class IndentHandler

  Indentation handler base class.
- class Log

  Log base class.
- struct NameMangling

  Name mangling descriptor structure for shader input/output variables (also referred to as "varyings"), temporary variables, and reserved keywords.
- struct Options

  Structure for additional translation options.
- class Report

  Report exception class which contains a completely constructed message with optional line marker, hints, and context description.

- class ScopedIndent

  Helper class for temporary indentation.
- struct ShaderInput

  Shader input descriptor structure.
- struct ShaderOutput

  Shader output descriptor structure.
- class StdLog

  Standard output log (uses std::cout to submit a report).
- struct VertexSemantic

  Vertex shader semantic (or rather attribute) layout structure.
- struct Warnings

  Compiler warning flags.

Enumerations

- enum ReportTypes { ReportTypes::Info, ReportTypes::Warning, ReportTypes::Error }

  Report types enumeration.
- enum ShaderTarget {
  ShaderTarget::Undefined, ShaderTarget::VertexShader, ShaderTarget::TessellationControlShader, Shader↩ Target::TessellationEvaluationShader,
  ShaderTarget::GeometryShader, ShaderTarget::FragmentShader, ShaderTarget::ComputeShader }

  Shader target enumeration.
- enum InputShaderVersion {
  InputShaderVersion::Cg = 2, InputShaderVersion::HLSL3 = 3, InputShaderVersion::HLSL4 = 4, Input↩ ShaderVersion::HLSL5 = 5,
  InputShaderVersion::HLSL6 = 6, InputShaderVersion::GLSL = 0x0000ffff, InputShaderVersion::ESSL = 0x0001ffff, InputShaderVersion::VKSL = 0x0002ffff }

  Input shader version enumeration.
- enum OutputShaderVersion {
  OutputShaderVersion::GLSL110 = 110, OutputShaderVersion::GLSL120 = 120, OutputShaderVersion::GL↩ SL130 = 130, OutputShaderVersion::GLSL140 = 140,
  OutputShaderVersion::GLSL150 = 150, OutputShaderVersion::GLSL330 = 330, OutputShaderVersion::GL↩ SL400 = 400, OutputShaderVersion::GLSL410 = 410,
  OutputShaderVersion::GLSL420 = 420, OutputShaderVersion::GLSL430 = 430, OutputShaderVersion::GL↩ SL440 = 440, OutputShaderVersion::GLSL450 = 450,
  OutputShaderVersion::GLSL460 = 460, OutputShaderVersion::GLSL = 0x0000ffff, OutputShaderVersion::↩ ESSL100 = (0x00010000 + 100), OutputShaderVersion::ESSL300 = (0x00010000 + 300),
  OutputShaderVersion::ESSL310 = (0x00010000 + 310), OutputShaderVersion::ESSL320 = (0x00010000 + 320), OutputShaderVersion::ESSL = 0x0001ffff, OutputShaderVersion::VKSL450 = (0x00020000 + 450),
  OutputShaderVersion::VKSL = 0x0002ffff }

  Output shader version enumeration.
- enum IntermediateLanguage { IntermediateLanguage::SPIRV }

  Intermediate language enumeration.

Functions

- XSC_EXPORT std::string ToString (const Reflection::Filter t)

  Returns the string representation of the specified 'SamplerState::Filter' type.
- XSC_EXPORT std::string ToString (const Reflection::TextureAddressMode t)

  Returns the string representation of the specified 'SamplerState::TextureAddressMode' type.
- XSC_EXPORT std::string ToString (const Reflection::ComparisonFunc t)

  Returns the string representation of the specified 'SamplerState::ComparisonFunc' type.

- XSC_EXPORT void PrintReflection (std::ostream &stream, const Reflection::ReflectionData &reflectionData)

  Prints the reflection data into the output stream in a human readable format.
- XSC_EXPORT std::string ToString (const ShaderTarget target)

  Returns the specified shader target as string.
- XSC_EXPORT std::string ToString (const InputShaderVersion shaderVersion)

  Returns the specified shader input version as string.
- XSC_EXPORT std::string ToString (const OutputShaderVersion shaderVersion)

  Returns the specified shader output version as string.
- XSC_EXPORT std::string ToString (const IntermediateLanguage language)

  Returns the specified intermediate language as string.
- XSC_EXPORT bool IsLanguageHLSL (const InputShaderVersion shaderVersion)

  Returns true if the shader input version specifies HLSL (for DirectX) or Cg (handled as dialect or HLSL).
- XSC_EXPORT bool IsLanguageGLSL (const InputShaderVersion shaderVersion)

  Returns true if the shader input version specifies GLSL (for OpenGL, OpenGL ES, and Vulkan).
- XSC_EXPORT bool IsLanguageGLSL (const OutputShaderVersion shaderVersion)

  Returns true if the shader output version specifies GLSL (for OpenGL 2+).
- XSC_EXPORT bool IsLanguageESSL (const OutputShaderVersion shaderVersion)

  Returns true if the shader output version specifies ESSL (for OpenGL ES 2+).
- XSC_EXPORT bool IsLanguageVKSL (const OutputShaderVersion shaderVersion)

  Returns true if the shader output version specifies VKSL (for Vulkan).
- XSC_EXPORT const std::map$<$ std::string, int $>$ & GetGLSLExtensionEnumeration ()

  Returns the enumeration of all supported GLSL extensions as a map of extension name and version number.
- XSC_EXPORT bool CompileShader (const ShaderInput &inputDesc, const ShaderOutput &outputDesc, Log $*$log=nullptr, Reflection::ReflectionData $*$reflectionData=nullptr)

  Cross compiles the shader code from the specified input stream into the specified output shader code.
- XSC_EXPORT void DisassembleShader (std::istream &streamIn, std::ostream &streamOut, const AssemblyDescriptor &desc={})

  Disassembles the SPIR-V binary code into a human readable code.

5.1.1 Detailed Description

Main XShaderCompiler namespace.

5.1.2 Enumeration Type Documentation

5.1.2.1 enum **Xsc::InputShaderVersion** [strong]

Input shader version enumeration.

Enumerator

Cg	Cg (C for graphics) is a slightly extended HLSL3.
HLSL3	HLSL Shader Model 3.0 (DirectX 9).
HLSL4	HLSL Shader Model 4.0 (DirectX 10).
HLSL5	HLSL Shader Model 5.0 (DirectX 11).
HLSL6	HLSL Shader Model 6.0 (DirectX 12).
GLSL	GLSL (OpenGL).
ESSL	GLSL (OpenGL ES).
VKSL	GLSL (Vulkan).

5.1.2.2 enum Xsc::IntermediateLanguage [strong]

Intermediate language enumeration.

Enumerator

SPIRV SPIR-V.

5.1.2.3 enum Xsc::OutputShaderVersion [strong]

Output shader version enumeration.

Enumerator

GLSL110 GLSL 1.10 (OpenGL 2.0).

GLSL120 GLSL 1.20 (OpenGL 2.1).

GLSL130 GLSL 1.30 (OpenGL 3.0).

GLSL140 GLSL 1.40 (OpenGL 3.1).

GLSL150 GLSL 1.50 (OpenGL 3.2).

GLSL330 GLSL 3.30 (OpenGL 3.3).

GLSL400 GLSL 4.00 (OpenGL 4.0).

GLSL410 GLSL 4.10 (OpenGL 4.1).

GLSL420 GLSL 4.20 (OpenGL 4.2).

GLSL430 GLSL 4.30 (OpenGL 4.3).

GLSL440 GLSL 4.40 (OpenGL 4.4).

GLSL450 GLSL 4.50 (OpenGL 4.5).

GLSL460 GLSL 4.60 (OpenGL 4.6).

GLSL Auto-detect minimal required GLSL version (for OpenGL 2+).

ESSL100 ESSL 1.00 (OpenGL ES 2.0).

Note

Currently not supported!

ESSL300 ESSL 3.00 (OpenGL ES 3.0).

Note

Currently not supported!

ESSL310 ESSL 3.10 (OpenGL ES 3.1).

Note

Currently not supported!

ESSL320 ESSL 3.20 (OpenGL ES 3.2).

Note

Currently not supported!

ESSL Auto-detect minimum required ESSL version (for OpenGL ES 2+).

Note

Currently not supported!

VKSL450 VKSL 4.50 (Vulkan 1.0).

VKSL Auto-detect minimum required VKSL version (for Vulkan/SPIR-V).

5.1.2.4 enum Xsc::ReportTypes `[strong]`

Report types enumeration.

Enumerator

Info	Standard information.
Warning	Warning message.
Error	Error message.

5.1.2.5 enum Xsc::ShaderTarget `[strong]`

Shader target enumeration.

Enumerator

Undefined	Undefined shader target.
VertexShader	Vertex shader.
TessellationControlShader	Tessellation-control (also Hull-) shader.
TessellationEvaluationShader	Tessellation-evaluation (also Domain-) shader.
GeometryShader	Geometry shader.
FragmentShader	Fragment (also Pixel-) shader.
ComputeShader	Compute shader.

5.1.3 Function Documentation

5.1.3.1 XSC_EXPORT bool Xsc::CompileShader (const ShaderInput & *inputDesc*, const ShaderOutput & *outputDesc*, Log ∗ *log* = `nullptr`, Reflection::ReflectionData ∗ *reflectionData* = `nullptr`)

Cross compiles the shader code from the specified input stream into the specified output shader code.

Parameters

`in`	*inputDesc*	Input shader code descriptor.
`in`	*outputDesc*	Output shader code descriptor.
`in`	*log*	Optional pointer to an output log. Inherit from the "Log" class interface. By default null.
`out`	*reflectionData*	Optional pointer to a code reflection data structure. By default null.

Returns

True if the code has been translated successfully.

Exceptions

std::invalid_argument	If either the input or output streams are null.

See also

ShaderInput
ShaderOutput
Log
ReflectionData

5.1.3.2 XSC_EXPORT void Xsc::DisassembleShader (std::istream & *streamIn,* std::ostream & *streamOut,* const AssemblyDescriptor & *desc =* { })

Disassembles the SPIR-V binary code into a human readable code.

Parameters

`in,out`	*streamIn*	Specifies the input stream of the SPIR-V binary code.
`in,out`	*streamOut*	Specifies the output stream of the human readable code.
`in`	*formatting*	Specifies the output formatting.

Exceptions

std::runtime_error	If the disassembling failed.
std::invalid_argument	If 'desc.intermediateLanguage' has an invalid value.

5.2 Xsc::ConsoleManip Namespace Reference

Namespace for console manipulation.

Classes

- struct ColorFlags

  Output stream color flags enumeration.
- class ScopedColor

  Helper class for scoped color stack operations.

Functions

- void XSC_EXPORT Enable (bool enable)

  Enables or disables console manipulation. By default enabled.
- bool XSC_EXPORT IsEnabled ()

  Returns true if console manipulation is enabled.
- void XSC_EXPORT PushColor (long front, std::ostream &stream=std::cout)

  Pushes the specified front color flags onto the stack.
- void XSC_EXPORT PushColor (long front, long back, std::ostream &stream=std::cout)

  Pushes the specified front and back color flags onto the stack.
- void XSC_EXPORT PopColor (std::ostream &stream=std::cout)

  Pops the previous front and back color flags from the stack.

5.2.1 Detailed Description

Namespace for console manipulation.

5.2.2 Function Documentation

5.2.2.1 void XSC_EXPORT Xsc::ConsoleManip::PushColor (long *front*, std::ostream & *stream* = `std::cout`)

Pushes the specified front color flags onto the stack.

Parameters

`in`	*front*	Specifies the flags for the front color. This can be a bitwise OR combination of the flags declared in 'ColorFlags'.
`in,out`	*stream*	Specifies the output stream whose front color is to be changed. This output stream is only required for Linux and MacOS, since the colors are specified by the streams itself.

See also

ColorFlags

5.2.2.2 void XSC_EXPORT Xsc::ConsoleManip::PushColor (long *front*, long *back*, std::ostream & *stream* = `std::cout`)

Pushes the specified front and back color flags onto the stack.

Parameters

`in`	*front*	Specifies the flags for the front color. This can be a bitwise OR combination of the flags declared in 'ColorFlags'.
`in`	*back*	Specifies the flags for the background color. This can be a bitwise OR combination of the flags declared in 'ColorFlags'.
`in,out`	*stream*	Specifies the output stream whose front color is to be changed. This output stream is only required for Linux and MacOS, since the colors are specified by the streams itself.

See also

ColorFlags

5.3 Xsc::Reflection Namespace Reference

Shader code reflection namespace.

Classes

- struct BindingSlot

Binding slot of textures, constant buffers, and fragment targets.
- struct NumThreads

  Number of threads within each work group of a compute shader.
- struct ReflectionData

  Structure for shader output statistics (e.g. texture/buffer binding points).
- struct SamplerState

  Static sampler state descriptor structure (D3D11_SAMPLER_DESC).

Enumerations

- enum Filter {
  MinMagMipPoint = 0, **MinMagPointMipLinear** = 0x1, **MinPointMagLinearMipPoint** = 0x4, **MinPoint↩ MagMipLinear** = 0x5,
  MinLinearMagMipPoint = 0x10, **MinLinearMagPointMipLinear** = 0x11, **MinMagLinearMipPoint** = 0x14, **MinMagMipLinear** = 0x15,
  Anisotropic = 0x55, **ComparisonMinMagMipPoint** = 0x80, **ComparisonMinMagPointMipLinear** = 0x81, **ComparisonMinPointMagLinearMipPoint** = 0x84,
  ComparisonMinPointMagMipLinear = 0x85, **ComparisonMinLinearMagMipPoint** = 0x90, **Comparison↩ MinLinearMagPointMipLinear** = 0x91, **ComparisonMinMagLinearMipPoint** = 0x94,
  ComparisonMinMagMipLinear = 0x95, **ComparisonAnisotropic** = 0xd5, **MinimumMinMagMipPoint** = 0x100, **MinimumMinMagPointMipLinear** = 0x101,
  MinimumMinPointMagLinearMipPoint = 0x104, **MinimumMinPointMagMipLinear** = 0x105, **Minimum↩ MinLinearMagMipPoint** = 0x110, **MinimumMinLinearMagPointMipLinear** = 0x111,
  MinimumMinMagLinearMipPoint = 0x114, **MinimumMinMagMipLinear** = 0x115, **MinimumAnisotropic** = 0x155, **MaximumMinMagMipPoint** = 0x180,
  MaximumMinMagPointMipLinear = 0x181, **MaximumMinPointMagLinearMipPoint** = 0x184, **Maximum↩ MinPointMagMipLinear** = 0x185, **MaximumMinLinearMagMipPoint** = 0x190,
  MaximumMinLinearMagPointMipLinear = 0x191, **MaximumMinMagLinearMipPoint** = 0x194, **Maximum↩ MinMagMipLinear** = 0x195, **MaximumAnisotropic** = 0x1d5 }

  Sampler filter enumeration (D3D11_FILTER).
- enum TextureAddressMode {
  Wrap = 1, **Mirror** = 2, **Clamp** = 3, **Border** = 4,
  MirrorOnce = 5 }

  Texture address mode enumeration (D3D11_TEXTURE_ADDRESS_MODE).
- enum ComparisonFunc {
  Never = 1, **Less** = 2, **Equal** = 3, **LessEqual** = 4,
  Greater = 5, **NotEqual** = 6, **GreaterEqual** = 7, **Always** = 8 }

  Sample comparison function enumeration (D3D11_COMPARISON_FUNC).

5.3.1 Detailed Description

Shader code reflection namespace.

Chapter 6

Class Documentation

6.1 Xsc::AssemblyDescriptor Struct Reference

Descriptor structure for the shader disassembler.

```
#include <Xsc.h>
```

Public Attributes

- IntermediateLanguage intermediateLanguage = IntermediateLanguage::SPIRV

  Specifies the intermediate language of the assembly input code. Currently only SPIR-V is supported. By default IntermediateLanguage::SPIRV.
- char idPrefixChar = '%'

  Specifies the prefix character to be used for ID numbers in the SPIR-V instructions.
- bool showHeader = true

  Specifies whether to show the module header or not. By default true.
- bool showOffsets = true

  Specifies whether to show the instruction byte offsets in the disassembly or not. By default true.
- bool showNames = false

  Specifies whether to show the debug names instead of the ID numbers. By default false.
- bool indentOperands = true

  Specifies whether to indent the instruction operands or not. By default true.

6.1.1 Detailed Description

Descriptor structure for the shader disassembler.

The documentation for this struct was generated from the following file:

- Xsc.h

6.2 Xsc::Reflection::BindingSlot Struct Reference

Binding slot of textures, constant buffers, and fragment targets.

```
#include <Reflection.h>
```

Public Attributes

- std::string ident

    Identifier of the binding point.
- int location

    Zero based binding point or location. If this is -1, the location has not been set.

6.2.1 Detailed Description

Binding slot of textures, constant buffers, and fragment targets.

The documentation for this struct was generated from the following file:

- Reflection.h

6.3 Xsc::ConsoleManip::ColorFlags Struct Reference

Output stream color flags enumeration.

```
#include <ConsoleManip.h>
```

Public Types

- enum {
  Red = (1 << 0), Green = (1 << 1), Blue = (1 << 2), Intens = (1 << 3),
  Black = 0, Gray = (Red | Green | Blue), White = (Gray | Intens), Yellow = (Red | Green | Intens),
  Pink = (Red | Blue | Intens), Cyan = (Green | Blue | Intens) }

6.3.1 Detailed Description

Output stream color flags enumeration.

6.3.2 Member Enumeration Documentation

6.3.2.1 anonymous enum

Enumerator

Red Red color flag.

Green Green color flag.

Blue Blue color flag.

Intens Intensity color flag.

Black Black color flag.

Gray Gray color flag (Red | Green | Blue).

White White color flag (Gray | Intens).

Yellow Yellow color flag (Red | Green | Intens).

Pink Pink color flag (Red | Blue | Intens).

Cyan Cyan color flag (Green | Blue | Intens).

The documentation for this struct was generated from the following file:

- ConsoleManip.h

6.4 Xsc::Extensions Struct Reference

Language extension flags. This is only supported, if the compiler was build with the 'XSC_ENABLE_LANGUAG↵ E_EXT' macro.

```
#include <Xsc.h>
```

Public Types

- enum : unsigned int { LayoutAttribute = (1 << 0), SpaceAttribute = (1 << 1), All = (∼0u) }

6.4.1 Detailed Description

Language extension flags. This is only supported, if the compiler was build with the 'XSC_ENABLE_LANGUAG↵ E_EXT' macro.

6.4.2 Member Enumeration Documentation

6.4.2.1 anonymous enum : unsigned int

Enumerator

LayoutAttribute Enables the 'layout' attribute extension (e.g. "[layout(rgba8)]").

SpaceAttribute Enables the 'space' attribute extension for a stronger type system (e.g. "[space(OBJECT, MODEL)]").

All All extensions.

The documentation for this struct was generated from the following file:

- Xsc.h

6.5 Xsc::Formatting Struct Reference

Formatting descriptor structure for the output shader.

```
#include <Xsc.h>
```

Public Attributes

- bool alwaysBracedScopes = false

  If true, scopes are always written in braces. By default false.
- bool blanks = true

  If true, blank lines are allowed. By default true.
- bool compactWrappers = false

  If true, wrapper functions for special intrinsics are written in a compact formatting (i.e. all in one line). By default false.
- std::string indent = " "

  Indentation string for code generation. By default std::string(4, ' ').
- bool lineMarks = false

  If true, line marks are allowed. By default false.
- bool lineSeparation = true

  If true, auto-formatting of line separation is allowed. By default true.
- bool newLineOpenScope = true

  If true, the '{'-braces for an open scope gets its own line. If false, braces are written like in Java coding conventions. By default true.

6.5.1 Detailed Description

Formatting descriptor structure for the output shader.

The documentation for this struct was generated from the following file:

- Xsc.h

6.6 Xsc::IncludeHandler Class Reference

Interface for handling new include streams.

```
#include <IncludeHandler.h>
```

Public Member Functions

- virtual std::unique_ptr< std::istream > Include (const std::string &filename, bool useSearchPathsFirst)

  Returns an input stream for the specified filename.

Public Attributes

- std::vector< std::string > searchPaths

  List of search paths.

6.6.1 Detailed Description

Interface for handling new include streams.

Remarks

The default implementation will read the files from an std::ifstream.

6.6.2 Member Function Documentation

6.6.2.1 virtual std::unique_ptr<std::istream> Xsc::IncludeHandler::Include (const std::string & *filename*, bool *useSearchPathsFirst*) `[virtual]`

Returns an input stream for the specified filename.

Parameters

`in`	*includeName*	Specifies the include filename.
`in`	*useSearchPathsFirst*	Specifies whether to first use the search paths to find the file.

Returns

Unique pointer to the new input stream.

The documentation for this class was generated from the following file:

- IncludeHandler.h

6.7 Xsc::IndentHandler Class Reference

Indentation handler base class.

`#include <IndentHandler.h>`

Public Member Functions

- **IndentHandler** (const std::string &initialIndent=std::string(2, ' '))
- void SetIndent (const std::string &indent)

  Sets the next indentation string. By default two spaces.
- void IncIndent ()

  Increments the indentation.
- void DecIndent ()

  Decrements the indentation.
- const std::string & FullIndent () const

  Returns the current full indentation string.

6.7.1 Detailed Description

Indentation handler base class.

The documentation for this class was generated from the following file:

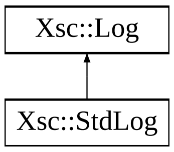
- IndentHandler.h

6.8 Xsc::Log Class Reference

Log base class.

```
#include <Log.h>
```

Inheritance diagram for Xsc::Log:



Public Member Functions

- virtual void SubmitReport (const Report &report)=0

  Submits the specified report.
- void SetIndent (const std::string &indent)

  Sets the next indentation string. By default two spaces.
- void IncIndent ()

  Increments the indentation.
- void DecIndent ()

  Decrements the indentation.

Protected Member Functions

- const std::string & FullIndent () const

  Returns the current full indentation string.

6.8.1 Detailed Description

Log base class.

The documentation for this class was generated from the following file:

- Log.h

6.9 Xsc::NameMangling Struct Reference

Name mangling descriptor structure for shader input/output variables (also referred to as "varyings"), temporary variables, and reserved keywords.

```
#include <Xsc.h>
```

Public Attributes

- std::string inputPrefix = "xsv_"

  Name mangling prefix for shader input variables. By default "xsv_".
- std::string outputPrefix = "xsv_"

  Name mangling prefix for shader output variables. By default "xsv_".
- std::string reservedWordPrefix = "xsr_"

  Name mangling prefix for reserved words (such as "texture", "main", "sin" etc.). By default "xsr_".
- std::string temporaryPrefix = "xst_"

  Name mangling prefix for temporary variables. By default "xst_".
- std::string namespacePrefix = "xsn_"

  Name mangling prefix for namespaces like structures or classes. By default "xsn_".
- bool useAlwaysSemantics = false
- bool renameBufferFields = false

  If true, the data fields of a 'buffer'-objects is renamed rather than the outer identifier. By default false.

6.9.1 Detailed Description

Name mangling descriptor structure for shader input/output variables (also referred to as "varyings"), temporary variables, and reserved keywords.

6.9.2 Member Data Documentation

6.9.2.1 std::string Xsc::NameMangling::inputPrefix = "xsv_"

Name mangling prefix for shader input variables. By default "xsv_".

Remarks

This can also be empty or equal to "outputPrefix".

6.9.2.2 std::string Xsc::NameMangling::namespacePrefix = "xsn_"

Name mangling prefix for namespaces like structures or classes. By default "xsn_".

Remarks

This can also be empty, but if it's not empty it must not be equal to any of the other prefixes.

6.9.2.3 std::string Xsc::NameMangling::outputPrefix = "xsv_"

Name mangling prefix for shader output variables. By default "xsv_".

Remarks

This can also be empty or equal to "inputPrefix".

6.9.2.4 bool Xsc::NameMangling::renameBufferFields = false

If true, the data fields of a 'buffer'-objects is renamed rather than the outer identifier. By default false.

Remarks

This can be useful for external diagnostic tools, to access the original identifier.

6.9.2.5 std::string Xsc::NameMangling::reservedWordPrefix = "xsr_"

Name mangling prefix for reserved words (such as "texture", "main", "sin" etc.). By default "xsr_".

Remarks

This must not be equal to any of the other prefixes and it must not be empty.

6.9.2.6 std::string Xsc::NameMangling::temporaryPrefix = "xst_"

Name mangling prefix for temporary variables. By default "xst_".

Remarks

This must not be equal to any of the other prefixes and it must not be empty.

6.9.2.7 bool Xsc::NameMangling::useAlwaysSemantics = false

If true, shader input/output variables are always renamed to their semantics, even for vertex input and fragment output. Otherwise, their original identifiers are used. By default false.

The documentation for this struct was generated from the following file:

- Xsc.h

6.10 Xsc::Reflection::NumThreads Struct Reference

Number of threads within each work group of a compute shader.

```
#include <Reflection.h>
```

Public Attributes

- int x = 0

  Number of shader compute threads in X dimension.
- int y = 0

  Number of shader compute threads in Y dimension.
- int z = 0

  Number of shader compute threads in Z dimension.

6.10.1 Detailed Description

Number of threads within each work group of a compute shader.

The documentation for this struct was generated from the following file:

- Reflection.h

6.11 Xsc::Options Struct Reference

Structure for additional translation options.

```
#include <Xsc.h>
```

Public Attributes

- bool allowExtensions = false

  If true, the shader output may contain GLSL extensions, if the target shader version is too low. By default false.
- bool autoBinding = false

  If true, binding slots for all buffer types will be generated sequentially, starting with index at 'autoBindingStartSlot'. By default false.
- int autoBindingStartSlot = 0

  Index to start generating binding slots from. Only relevant if 'autoBinding' is enabled. By default 0.
- bool explicitBinding = false

  If true, explicit binding slots are enabled. By default false.
- bool obfuscate = false

  If true, code obfuscation is performed. By default false.
- bool optimize = false

  If true, little code optimizations are performed. By default false.
- bool preferWrappers = false

  If true, intrinsics are prefered to be implemented as wrappers (instead of inlining). By default false.
- bool preprocessOnly = false

  If true, only the preprocessed source code will be written out. By default false.
- bool preserveComments = false

  If true, commentaries are preserved for each statement. By default false.
- bool rowMajorAlignment = false

  If true, matrices have row-major alignment. Otherwise the matrices have column-major alignment. By default false.
- bool separateSamplers = true

  If true, generated GLSL code will contain separate sampler and texture objects when supported. By default true.

- bool separateShaders = false

  If true, generated GLSL code will support the 'ARB_separate_shader_objects' extension. By default false.
- bool showAST = false

  If true, the AST (Abstract Syntax Tree) will be written to the log output. By default false.
- bool showTimes = false

  If true, the timings of the different compilation processes are written to the log output. By default false.
- bool unrollArrayInitializers = false

  If true, array initializations will be unrolled. By default false.
- bool validateOnly = false

  If true, the source code is only validated, but no output code will be generated. By default false.

6.11.1 Detailed Description

Structure for additional translation options.

6.11.2 Member Data Documentation

6.11.2.1 bool Xsc::Options::autoBinding = false

If true, binding slots for all buffer types will be generated sequentially, starting with index at 'autoBindingStartSlot'. By default false.

Remarks

This will also enable 'explicitBinding'.

The documentation for this struct was generated from the following file:

- Xsc.h

6.12 Xsc::Reflection::ReflectionData Struct Reference

Structure for shader output statistics (e.g. texture/buffer binding points).

```
#include <Reflection.h>
```

Public Attributes

- std::vector< std::string > macros

    All defined macros after pre-processing.
- std::vector< std::string > uniforms

    Single shader uniforms.
- std::vector< BindingSlot > textures

    Texture bindings.
- std::vector< BindingSlot > storageBuffers

    Storage buffer bindings.
- std::vector< BindingSlot > constantBuffers

    Constant buffer bindings.
- std::vector< BindingSlot > inputAttributes

    Shader input attributes.
- std::vector< BindingSlot > outputAttributes

    Shader output attributes.
- std::map< std::string, SamplerState > samplerStates

    Static sampler states (identifier, states).
- NumThreads numThreads

    Number of local threads in a compute shader.

6.12.1 Detailed Description

Structure for shader output statistics (e.g. texture/buffer binding points).

The documentation for this struct was generated from the following file:

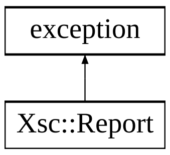
- Reflection.h

6.13 Xsc::Report Class Reference

Report exception class which contains a completely constructed message with optional line marker, hints, and context description.

```
#include <Report.h>
```

Inheritance diagram for Xsc::Report:



Public Member Functions

- **Report** (const Report &)=default
- Report & **operator=** (const Report &)=default
- **Report** (const ReportTypes type, const std::string &message, const std::string &context="")
- **Report** (const ReportTypes type, const std::string &message, const std::string &line, const std::string &marker, const std::string &context="")
- const char ∗ what () const override throw ()

  Overrides the 'std::exception::what' function.
- void TakeHints (std::vector< std::string > &&hints)

  Moves the specified hints into this report.
- ReportTypes Type () const

  Returns the type of this report.
- const std::string & Context () const

  Returns the context description string (e.g. a function name where the report occured). This may also be empty.
- const std::string & Message () const

  Returns the message string.
- const std::string & Line () const

  Returns the line string where the report occured. This line never has new-line characters at its end.
- const std::string & Marker () const

  Returns the line marker string to highlight the area where the report occured.
- const std::vector< std::string > & GetHints () const

  Returns the list of optional hints of the report.
- bool HasLine () const

  Returns true if this report has a line with line marker.

6.13.1 Detailed Description

Report exception class which contains a completely constructed message with optional line marker, hints, and context description.

6.13.2 Member Function Documentation

6.13.2.1 bool Xsc::Report::HasLine ( ) const [inline]

Returns true if this report has a line with line marker.

See also

Line
Marker

The documentation for this class was generated from the following file:

- Report.h

6.14 Xsc::Reflection::SamplerState Struct Reference

Static sampler state descriptor structure (D3D11_SAMPLER_DESC).

```
#include <Reflection.h>
```

Public Attributes

- Filter **filter** = Filter::MinMagMipLinear
- TextureAddressMode **addressU** = TextureAddressMode::Clamp
- TextureAddressMode **addressV** = TextureAddressMode::Clamp
- TextureAddressMode **addressW** = TextureAddressMode::Clamp
- float **mipLODBias** = 0.0f
- unsigned int **maxAnisotropy** = 1u
- ComparisonFunc **comparisonFunc** = ComparisonFunc::Never
- float **borderColor** [4] = { 0.0f, 0.0f, 0.0f, 0.0f }
- float **minLOD** = -std::numeric_limits<float>::max()
- float **maxLOD** = std::numeric_limits<float>::max()

6.14.1 Detailed Description

Static sampler state descriptor structure (D3D11_SAMPLER_DESC).

Remarks

All members and enumerations have the same values like the one in the "D3D11_SAMPLER_DESC" structure respectively. Thus, they can all be statically casted from and to the original D3D11 values.

See also

https://msdn.microsoft.com/en-us/library/windows/desktop/ff476207(v=vs.↩
85).aspx

The documentation for this struct was generated from the following file:

- Reflection.h

6.15 Xsc::ConsoleManip::ScopedColor Class Reference

Helper class for scoped color stack operations.

```
#include <ConsoleManip.h>
```

Public Member Functions

- ScopedColor (long front, std::ostream &stream=std::cout)

  Constructor with output stream and front color flags.
- ScopedColor (long front, long back, std::ostream &stream=std::cout)

  Constructor with output stream, and front- and back color flags.
- ∼ScopedColor ()

  Destructor which will reset the previous color from the output stream.

6.15.1 Detailed Description

Helper class for scoped color stack operations.

6.15.2 Constructor & Destructor Documentation

6.15.2.1 Xsc::ConsoleManip::ScopedColor::ScopedColor (long *front*, std::ostream & *stream* = `std::cout`) `[inline]`

Constructor with output stream and front color flags.

Parameters

`in,out`	*stream*	Specifies the output stream for which the scope is to be changed. This is only used for Unix systems.
`in`	*front*	Specifies the front color flags. This can be a bitwise OR combination of the entries of the ColorFlags enumeration.

See also

ColorFlags
PushColor(long, std::ostream&)

6.15.2.2 Xsc::ConsoleManip::ScopedColor::ScopedColor (long *front*, long *back*, std::ostream & *stream* = `std::cout`) `[inline]`

Constructor with output stream, and front- and back color flags.

Parameters

`in,out`	*stream*	Specifies the output stream for which the scope is to be changed. This is only used for Unix systems.
`in`	*front*	Specifies the front color flags. This can be a bitwise OR combination of the entries of the ColorFlags enumeration.
`in`	*back*	Specifies the back color flags. This can be a bitwise OR combination of the entries of the ColorFlags enumeration.

See also

ColorFlags
PushColor(std::ostream&, long, long)

6.15.2.3 Xsc::ConsoleManip::ScopedColor::∼ScopedColor ( ) [inline]

Destructor which will reset the previous color from the output stream.

See also

PopColor

The documentation for this class was generated from the following file:

- ConsoleManip.h

6.16 Xsc::ScopedIndent Class Reference

Helper class for temporary indentation.

```
#include <IndentHandler.h>
```

Public Member Functions

- **ScopedIndent** (IndentHandler &handler)

6.16.1 Detailed Description

Helper class for temporary indentation.

The documentation for this class was generated from the following file:

- IndentHandler.h

6.17 Xsc::ShaderInput Struct Reference

Shader input descriptor structure.

```
#include <Xsc.h>
```

Public Attributes

- std::string filename

    Specifies the filename of the input shader code. This is an optional attribute, and only a hint to the compiler.
- std::shared_ptr< std::istream > sourceCode

    Specifies the input source code stream.
- InputShaderVersion shaderVersion = InputShaderVersion::HLSL5

    Specifies the input shader version (e.g. InputShaderVersion::HLSL5 for "HLSL 5"). By default InputShaderVersion↵ ::HLSL5.
- ShaderTarget shaderTarget = ShaderTarget::Undefined

    Specifies the target shader (Vertex, Fragment etc.). By default ShaderTarget::Undefined.
- std::string entryPoint = "main"

    Specifies the HLSL shader entry point. By default "main".
- std::string secondaryEntryPoint

    Specifies the secondary HLSL shader entry point.
- unsigned int warnings = 0

    Compiler warning flags. This can be a bitwise OR combination of the "Warnings" enumeration entries. By default 0.
- unsigned int extensions = 0

    Language extension flags. This can be a bitwise OR combination of the "Extensions" enumeration entries. By default 0.
- IncludeHandler ∗ includeHandler = nullptr

    Optional pointer to the implementation of the "IncludeHandler" interface. By default null.

6.17.1 Detailed Description

Shader input descriptor structure.

6.17.2 Member Data Documentation

6.17.2.1 unsigned int Xsc::ShaderInput::extensions = 0

Language extension flags. This can be a bitwise OR combination of the "Extensions" enumeration entries. By default 0.

Remarks

This is ignored, if the compiler was not build with the 'XSC_ENABLE_LANGUAGE_EXT' macro.

See also

Extensions

6.17.2.2 IncludeHandler∗ Xsc::ShaderInput::includeHandler = nullptr

Optional pointer to the implementation of the "IncludeHandler" interface. By default null.

Remarks

If this is null, the default include handler will be used, which will include files with the STL input file streams.

6.17.2.3 std::string Xsc::ShaderInput::secondaryEntryPoint

Specifies the secondary HLSL shader entry point.

Remarks

This is only used for a Tessellation-Control Shader (alias Hull Shader) entry point, when a Tessellation-↩
Control Shader (alias Domain Shader) is the output target. This is required to translate all Tessellation-Control attributes (i.e. "partitioning" and "outputtopology") to the Tessellation-Evaluation output shader. If this is empty, the default values for these attributes are used.

6.17.2.4 unsigned int Xsc::ShaderInput::warnings = 0

Compiler warning flags. This can be a bitwise OR combination of the "Warnings" enumeration entries. By default 0.

See also

Warnings

The documentation for this struct was generated from the following file:

- Xsc.h

6.18 Xsc::ShaderOutput Struct Reference

Shader output descriptor structure.

```
#include <Xsc.h>
```

Public Attributes

- std::string filename

  Specifies the filename of the output shader code. This is an optional attribute, and only a hint to the compiler.
- std::ostream ∗ sourceCode = nullptr

  Specifies the output source code stream. This will contain the output code. This must not be null when passed to the "CompileShader" function!
- OutputShaderVersion shaderVersion = OutputShaderVersion::GLSL

  Specifies the output shader version. By default OutputShaderVersion::GLSL (to auto-detect minimum required version).
- std::vector< VertexSemantic > vertexSemantics

  Optional list of vertex semantic layouts, to bind a vertex attribute (semantic name) to a location index (only used when 'explicitBinding' is true).
- Options options

  Additional options to configure the code generation.
- Formatting formatting

  Output code formatting descriptor.
- NameMangling nameMangling

  Specifies the options for name mangling.

6.18.1 Detailed Description

Shader output descriptor structure.

The documentation for this struct was generated from the following file:

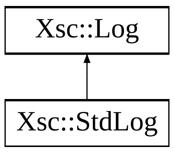
- Xsc.h

6.19 Xsc::StdLog Class Reference

Standard output log (uses std::cout to submit a report).

```
#include <Log.h>
```

Inheritance diagram for Xsc::StdLog:



Public Member Functions

- void SubmitReport (const Report &report) override

    Implements the base class interface.
- void PrintAll (bool verbose=true)

    Prints all submitted reports to the standard output.

Additional Inherited Members

6.19.1 Detailed Description

Standard output log (uses std::cout to submit a report).

The documentation for this class was generated from the following file:

- Log.h

6.20 Xsc::VertexSemantic Struct Reference

Vertex shader semantic (or rather attribute) layout structure.

```
#include <Xsc.h>
```

Public Attributes

- std::string semantic

    Specifies the shader semantic (or rather attribute).
- int location

    Specifies the binding location.

6.20.1 Detailed Description

Vertex shader semantic (or rather attribute) layout structure.

The documentation for this struct was generated from the following file:

- Xsc.h

6.21 Xsc::Warnings Struct Reference

Compiler warning flags.

```
#include <Xsc.h>
```

Public Types

- enum : unsigned int {
  Basic = (1 << 0), Syntax = (1 << 1), PreProcessor = (1 << 2), UnusedVariables = (1 << 3),
  EmptyStatementBody = (1 << 4), ImplicitTypeConversions = (1 << 5), DeclarationShadowing = (1 << 6),
  UnlocatedObjects = (1 << 7),
  RequiredExtensions = (1 << 8), CodeReflection = (1 << 9), IndexBoundary = (1 << 10), All = (∼0u) }

6.21.1 Detailed Description

Compiler warning flags.

6.21.2 Member Enumeration Documentation

6.21.2.1 anonymous enum : unsigned int

Enumerator

Basic Warning for basic issues (control path, disabled code etc.).

Syntax Warning for syntactic issues.

PreProcessor Warning for pre-processor issues.

UnusedVariables Warning for unused variables.

EmptyStatementBody Warning for statements with empty body.

ImplicitTypeConversions Warning for specific implicit type conversions.

DeclarationShadowing Warning for declarations that shadow a previous local (e.g. for-loops or variables in class hierarchy).

UnlocatedObjects Warning for optional objects that where not found.

RequiredExtensions Warning for required extensions in the output code.

CodeReflection Warning for issues during code reflection.

IndexBoundary Warning for index boundary violations.

All All warnings.

The documentation for this struct was generated from the following file:

- Xsc.h

Index

~ScopedColor
    Xsc::ConsoleManip::ScopedColor, 31

All
    Xsc::Extensions, 19
    Xsc::Warnings, 35
autoBinding
    Xsc::Options, 26

Basic
    Xsc::Warnings, 35
Black
    Xsc::ConsoleManip::ColorFlags, 19
Blue
    Xsc::ConsoleManip::ColorFlags, 19

Cg
    Xsc, 11
CodeReflection
    Xsc::Warnings, 35
CompileShader
    Xsc, 13
ComputeShader
    Xsc, 13
Cyan
    Xsc::ConsoleManip::ColorFlags, 19

DeclarationShadowing
    Xsc::Warnings, 35
DisassembleShader
    Xsc, 14

ESSL100
    Xsc, 12
ESSL300
    Xsc, 12
ESSL310
    Xsc, 12
ESSL320
    Xsc, 12
ESSL
    Xsc, 11, 12
EmptyStatementBody
    Xsc::Warnings, 35
Error
    Xsc, 13
extensions
    Xsc::ShaderInput, 32

FragmentShader
    Xsc, 13

GLSL110
    Xsc, 12
GLSL120
    Xsc, 12
GLSL130
    Xsc, 12
GLSL140
    Xsc, 12
GLSL150
    Xsc, 12
GLSL330
    Xsc, 12
GLSL400
    Xsc, 12
GLSL410
    Xsc, 12
GLSL420
    Xsc, 12
GLSL430
    Xsc, 12
GLSL440
    Xsc, 12
GLSL450
    Xsc, 12
GLSL460
    Xsc, 12
GLSL
    Xsc, 11, 12
GeometryShader
    Xsc, 13
Gray
    Xsc::ConsoleManip::ColorFlags, 19
Green
    Xsc::ConsoleManip::ColorFlags, 19

HLSL3
    Xsc, 11
HLSL4
    Xsc, 11
HLSL5
    Xsc, 11
HLSL6
    Xsc, 11
HasLine
    Xsc::Report, 28

ImplicitTypeConversions
    Xsc::Warnings, 35
Include
    Xsc::IncludeHandler, 21

includeHandler
    Xsc::ShaderInput, 32
IndexBoundary
    Xsc::Warnings, 35
Info
    Xsc, 13
inputPrefix
    Xsc::NameMangling, 23
InputShaderVersion
    Xsc, 11
Intens
    Xsc::ConsoleManip::ColorFlags, 19
IntermediateLanguage
    Xsc, 11

LayoutAttribute
    Xsc::Extensions, 19

namespacePrefix
    Xsc::NameMangling, 23

outputPrefix
    Xsc::NameMangling, 23
OutputShaderVersion
    Xsc, 12

Pink
    Xsc::ConsoleManip::ColorFlags, 19
PreProcessor
    Xsc::Warnings, 35
PushColor
    Xsc::ConsoleManip, 15

Red
    Xsc::ConsoleManip::ColorFlags, 19
renameBufferFields
    Xsc::NameMangling, 24
ReportTypes
    Xsc, 12
RequiredExtensions
    Xsc::Warnings, 35
reservedWordPrefix
    Xsc::NameMangling, 24

SPIRV
    Xsc, 12
ScopedColor
    Xsc::ConsoleManip::ScopedColor, 30
secondaryEntryPoint
    Xsc::ShaderInput, 32
ShaderTarget
    Xsc, 13
SpaceAttribute
    Xsc::Extensions, 19
Syntax
    Xsc::Warnings, 35

temporaryPrefix
    Xsc::NameMangling, 24
TessellationControlShader
    Xsc, 13
TessellationEvaluationShader
    Xsc, 13

Undefined
    Xsc, 13
UnlocatedObjects
    Xsc::Warnings, 35
UnusedVariables
    Xsc::Warnings, 35
useAlwaysSemantics
    Xsc::NameMangling, 24

VKSL450
    Xsc, 12
VKSL
    Xsc, 11, 12
VertexShader
    Xsc, 13

Warning
    Xsc, 13
warnings
    Xsc::ShaderInput, 33
White
    Xsc::ConsoleManip::ColorFlags, 19

Xsc, 9
    Cg, 11
    CompileShader, 13
    ComputeShader, 13
    DisassembleShader, 14
    ESSL100, 12
    ESSL300, 12
    ESSL310, 12
    ESSL320, 12
    ESSL, 11, 12
    Error, 13
    FragmentShader, 13
    GLSL110, 12
    GLSL120, 12
    GLSL130, 12
    GLSL140, 12
    GLSL150, 12
    GLSL330, 12
    GLSL400, 12
    GLSL410, 12
    GLSL420, 12
    GLSL430, 12
    GLSL440, 12
    GLSL450, 12
    GLSL460, 12
    GLSL, 11, 12
    GeometryShader, 13
    HLSL3, 11
    HLSL4, 11
    HLSL5, 11
    HLSL6, 11
    Info, 13

InputShaderVersion, 11
IntermediateLanguage, 11
OutputShaderVersion, 12
ReportTypes, 12
SPIRV, 12
ShaderTarget, 13
TessellationControlShader, 13
TessellationEvaluationShader, 13
Undefined, 13
VKSL450, 12
VKSL, 11, 12
VertexShader, 13
Warning, 13
Xsc::AssemblyDescriptor, 17
Xsc::ConsoleManip, 14
PushColor, 15
Xsc::ConsoleManip::ColorFlags, 18
Black, 19
Blue, 19
Cyan, 19
Gray, 19
Green, 19
Intens, 19
Pink, 19
Red, 19
White, 19
Yellow, 19
Xsc::ConsoleManip::ScopedColor, 29
∼ScopedColor, 31
ScopedColor, 30
Xsc::Extensions, 19
All, 19
LayoutAttribute, 19
SpaceAttribute, 19
Xsc::Formatting, 20
Xsc::IncludeHandler, 20
Include, 21
Xsc::IndentHandler, 21
Xsc::Log, 22
Xsc::NameMangling, 23
inputPrefix, 23
namespacePrefix, 23
outputPrefix, 23
renameBufferFields, 24
reservedWordPrefix, 24
temporaryPrefix, 24
useAlwaysSemantics, 24
Xsc::Options, 25
autoBinding, 26
Xsc::Reflection, 15
Xsc::Reflection::BindingSlot, 18
Xsc::Reflection::NumThreads, 24
Xsc::Reflection::ReflectionData, 26
Xsc::Reflection::SamplerState, 29
Xsc::Report, 27
HasLine, 28
Xsc::ScopedIndent, 31
Xsc::ShaderInput, 31
extensions, 32
includeHandler, 32
secondaryEntryPoint, 32
warnings, 33
Xsc::ShaderOutput, 33
Xsc::StdLog, 34
Xsc::VertexSemantic, 34
Xsc::Warnings, 35
All, 35
Basic, 35
CodeReflection, 35
DeclarationShadowing, 35
EmptyStatementBody, 35
ImplicitTypeConversions, 35
IndexBoundary, 35
PreProcessor, 35
RequiredExtensions, 35
Syntax, 35
UnlocatedObjects, 35
UnusedVariables, 35

Yellow
Xsc::ConsoleManip::ColorFlags, 19