OBJECT MANAGEMENT GROUP

VSIPL Core Light Profile

Version 1.5

1.1. Introduction

This document contains minimum requirements for a VSIPL compliant library meeting a profile called VSIPL Core Light, or just Core Light. This is a companion requirements document to the VSIPL specification. All functions and data types required in the Core Light profile must meet all requirements for functions and data types as defined in the VSIPL specification.

1.2. Basic Data Types

This profile is a list of the (minimum) required functions to meet a VSIPL Core Light profile. Implementation of the profile requires the implementor to support VSIPL data types needed to implement the functions.

To meet the minimum requirement for a VSIPL Core Light profile the implementor need only support one float type, and one integer type.

The following scalar data types are listed as a convenience. In order to implement the functions of the Core Light profile in accordance with the VSIPL specification these scalars must be defined. Note that _f and _i denote some implementation dependent float type and some implementation dependent integer type respectively.

Data Type	Comments
vsip_scalar_vi	Scalar vector index.
vsip_scalar_bl	Scalar boolean.
vsip_scalar_f	Only a single float type is needed.
vsip_cscalar_f	Only a single complex float type of precision matching vsip_scalar_f is needed.
vsip_scalar_i	A single signed integer type is needed

1.3. Function Profile for Core Light

1.3.1. Support Functions

All profiles must include `vsip_init` and `vsip_finalize` support functions. In addition, Core Light must include the following VSIPL support functions.

1.3.1.1. Block Support

The following set of functions are included for block support in Core Light.

vsip_blockcreate_f	vsip_blockcreate_i	vsip_cblockcreate_f
vsip_blockbind_f	vsip_blockbind_i	vsip_cblockbind_f
vsip_blockfind_f	vsip_blockfind_i	vsip_cblockfind_f
vsip_blockdestroy_f	vsip_blockdestroy_i	vsip_cblockdestroy_f
vsip_blockadmit_f	vsip_blockadmit_i	vsip_cblockadmit_f
vsip_blockrelease_f	vsip_blockrelease_i	vsip_cblockrelease_f

vsip_blockrebind_f	vsip_blockrebind_i	vsip_cblockrebind_f
vsip_cstorage		

Total functions are 22 for block support.

1.3.1.2. View Support

The following set of functions are included for view support in Core Light.

vsip_vbind_f	vsip_vbind_i	vsip_cvbind_f
vsip_vcreate_f		vsip_cvcreate_f
vsip_vdestroy_f	vsip_vdestroy_i	vsip_cvdestroy_f
vsip_valldestroy_f		vsip_cvalldestroy_f
vsip_vcloneview_f		vsip_cvcloneview_f
		vsip_vrealview_f
		vsip_vimagview_f
vsip_vsubview_f		vsip_cvsubview_f
vsip_vgetattrib_f	vsip_vgetattrib_i	vsip_cvgetattrib_f
vsip_vgetblock_f		vsip_cvgetblock_f
vsip_vputattrib_f	vsip_vputattrib_i	vsip_cvputattrib_f
vsip_vputoffset_f		vsip_cvputoffset_f
vsip_vputstride_f		vsip_cvputstride_f
vsip_vputlength_f		vsip_cvputlength_f
vsip_vget_f		vsip_cvget_f
vsip_vput_f		vsip_cvput_f

Total functions are 34 for vector view support.

1.3.1.3. Copy Support

The following copy functions are included as part of the VSIPL Core Light Profile.

vsip_vcopy_f_f
vsip_vcopy_f_i
vsip_vcopy_i_f
vsip_cvcopy_f_f

Total functions are 4 for copy support.

1.3.2. Scalar functions

The following functions are included for scalar support in the VSIPL Core Light profile.

vsip_cmplx_f	vsip_CMPLX_f
vsip_imag_f	
vsip_real_f	

Total functions are 4 for scalar support.

1.3.3. Vector Elementwise Functions

The following vector and elementwise functions are included in the VSIPL Core Light profile.

vsip_vatan_f		
vsip_vatan2_f		
vsip_vcos_f		
vsip_vexp_f		
visp_vlog_f		
vsip_vlog10_f		
vsip_vsin_f		
vsip_vsqrt_f		
	vsip_cvconj_f	
vsip_vmag_f	vsip_cvmag_f	
	vsip_vcmagsq_f	
vsip_vneg_f	vsip_cvneg_f	
vsip_vrecip_f		
vsip_vrecip_f		
vsip_vsq_f		
vsip_vsumval_f		
vsip_vsumsqval_f		
vsip_vadd_f	vsip_cvadd_f	
vsip_svadd_f		
	vsip_cvjdot_f	
vsip_vdiv_f		
vsip_svdiv_f		
vsip_vdot_f	vsip_cvdot_f	
	vsip_cvjmul_f	
vsip_vmul_f	vsip_cvmul_f	vsip_rcvmul_f
vsip_svmul_f	vsip_csvmul_f	vsip_rscvmul_f
vsip_vsub_f	vsip_cvsub_f	
vsip_vmax_f		
vsip_vmaxval_f		
vsip_vmin_f		
vsip_vminval_f		
vsip_vfill_f		
vsip_vramp_f		
		vsip_vcmplx_f
		vsip_vimag_f

		vsip_vreal_f

The following functions are required for random support in the VSIPL Core Light profile.

vsip_vrandu_f	
vsip_randcreate	vsip_randdestroy

A total of 47 functions in vector and elementwise.

1.3.4. Signal Processing Functions

Core Light requires support for the following signal processing functions.

Table 1.1. Fast Fourier Transform

vsip_ccfftop_f	vsip_ccfftop_create_f	
vsip_rcfftop_f	vsip_rcfftop_create_f	
vsip_crfftop_f	vsip_crfftop_create_f	vsip_fft_destroy_f

Table 1.2. FIR Filter Functions

vsip_fir_create_f	vsip_cfir_create_f
vsip_firflt_f	vsip_cfirflt_f
vsip_fir_destroy_f	vsip_cfir_destroy_f

Table 1.3. Histogram Function

vsip_vhisto_f

A total of 14 functions in Signal Processing.

A total of 127 required functions.