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**Recommended Extensions   
to IEEE 1685-2022**

**May 2023**

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[www.accellera.org/activities/committees/ip-xact](http://www.accellera.org/activities/committees/ip-xact)

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and our dear friend **Joe Daniels** whose spirit is with us.

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# Overview

This section explains the scope and purpose of this standard. Furthermore, it gives an overview of the basic concepts and summarizes its contents.

## Scope

This standard describes XML schemas for IP-XACT vendor extensions that have been defined by the Accellera IP-XACT Working Group. These XML schemas are called Accellera Vendor Extensions.

## Purpose

This standard provides a way to describe conditional elements to IEEE Std 1685-2022 using IP-XACT vendor extensions. Although IEEE Std 1685-2014 introduced conditional elements, the IP-XACT Working Group decided to remove conditional elements in IEEE Std 1685-2022. The standard described in this document is used by the IP-XACT Working Group to describe conditional elements in 1685-2022 XML documents that are created by XSL transformations of 1685-2014 XML documents with conditional elements. The purpose of this standard is not to introduce new conditional elements; only the conditional elements that are present in 1685-2014 are supported with vendor extensions.

## Concepts

Accellera IP-XACT vendor extensions make use of Accellera vendor extension containers. An Accellera vendor extension container is an XML element that can occur in an IP-XACT vendor extension. The containers are defined in a generic unversioned namespace to enable generic processing of Accellera vendor extensions by IP-XACT enabled implementations; see Section 1.4. The sub-elements of the containers are defined in domain-specified versioned namespaces such that domain-specific tools do not have to process information from other domains.

## IP-XACT Enabled Implementations

As described in IEEE Std 1685-2022, Section 1.5.1, when modifying any existing IP-XACT descriptions, IP-XACT enabled design environments shall do so without losing any preexisting information. In particular, they shall preserve any vendor extension data included in the existing IP-XACT description.

In addition, IP-XACT enabled implementations that support vendor extensions shall not corrupt IP-XACT descriptions containing vendor extensions. More specifically, such implementations shall process name and id references correctly and avoid dangling references.

## Outline

Section 2 defines the XML schema for the **accellera** namespace to describe the organization of Accellera vendor extensions containers in groups. Section 3 through Section 7 describe the Accellera vendor extensions contains for the different groups **abstractionDefinition**, **component**, **abstractor**, **design**, and **designConfiguration**, respectively. Each container contains the **isPresent** element which is part of the **accellera-cond** namespace.

# Accellera vendor extensions container groups

An *Accellera vendor extensions container* is a container for Accellera vendor extensions meta-data. All Accellera vendor extensions containers are defined in the namespace “accellera”. This namespace is not versioned to enable generic standard extensions support from IP-XACT enabled design environments and tools. The Accellera vendor extensions container name is identical to the ipxact element name that it extends, except for the element names that exist in abstraction definitions and abstractor which conflict with element names in components such as port and view. The Accellera vendor extensions containers for these elements in abstraction definitions are prefixed with “abstractionDefinition” in order to distinguish them from the Accellera vendor extensions containers in components; see Section 3. The Accellera vendor extensions containers for these elements in abstractors are prefixed with “abstractor” in order to distinguish them from the Accellera vendor extensions containers in components.; see Section 5.

## Schema

The following schema defines groups of Accellera vendor extensions container elements.



## Description

Each element of the ***AccelleraVendorExtensionsDocumentTypes*** defines a group of Accellera vendor extensions containers:

1. ***accellera:abstractionDefinition*** (optional) describes vendor extensions containers for an **abstractionDefinition**.
2. ***accellera:component*** (optional) describes vendor extensions containers for a **component**.
3. ***accellera:abstractor*** (optional) describes vendor extensions containers for an **abstractor**.
4. ***accellera:design*** (optional) describes vendor extensions containers for a **design**.
5. ***accellera:designConfiguration*** (optional) describes vendor extensions containers for a **designConfiguration**.

# Accellera vendor extensions for abstraction definition

## Schema

The following schema defines the Accellera vendor extensions for an **abstractionDefinition** element.



## Description

The **abstractionDefinition** group defines the following Accellera vendor extensions containers inside an **abstractionDefinition** element:

1. **accellera:abstractionDefinitionPort** (optional) describes a vendor extensions container for a **logicalPort** element.

Each container element contains the following sub-element:

1. **accellera-cond:isPresent** (mandatory; type: ***unsignedBitExpression***) element describes whether the ipxact element enclosing the ipxact:vendorExtensions element is present in the document. If its value evaluates to 0 then the enclosing element is not present. If its value evaluates to 1 then the enclosing element is present.

## Example

This is an example of an abstraction definition containing an Accellera vendor extensions container. The container contains the **isPresent** element. In this example, the value of the **isPresent** element evaluates to 1, hence, the element **port** enclosing the **vendorExtensions** element is present.

<?xml version="1.0"?>

<ipxact:abstractionDefinition xmlns:ipxact="http://www.accellera.org/XMLSchema/IPXACT/1685-2022" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.accellera.org/XMLSchema/IPXACT/1685-2022 http://www.accellera.org/XMLSchema/IPXACT/1685-2022/index.xsd" xmlns:accellera="http://www.accellera.org/XMLSchema/IPXACT/1685-2022-VE" xmlns:accellera-cond="http://www.accellera.org/XMLSchema/IPXACT/1685-2022-VE/COND-1.0">

<ipxact:vendor>accellera.org</ipxact:vendor>

<ipxact:library>ipxact-wg</ipxact:library>

<ipxact:name>abstractionDefinition</ipxact:name>

<ipxact:version>1.0</ipxact:version>

<ipxact:busType vendor="a" library="b" name="c" version="d"/>

<ipxact:ports>

<ipxact:port>

<ipxact:logicalName>logicalPortName</ipxact:logicalName>

<ipxact:wire/>

<ipxact:vendorExtensions>

<accellera:abstractionDefinitionPort>

<accellera-cond:isPresent>1</accellera-cond:isPresent>

</accellera:abstractionDefinitionPort >

</ipxact:vendorExtensions>

</ipxact:port>

</ipxact:ports>

</ipxact:abstractionDefinition>

# Accellera vendor extensions for component

## Schema

The following schema defines the Accellera vendor extensions for a **component** element.





## Description

The **component** group defines the following Accellera vendor extensions containers inside a **component** element:

1. **accellera:addressBlock** (optional) describes a vendor extensions container for an **addressBlock** element.
2. **accellera:addressSpace** (optional) describes a vendor extensions container for an **addressSpace** element.
3. **accellera:addressSpaceRef** (optional) describes a vendor extensions container for an **addressSpaceRef** element.
4. **accellera:alternateRegister** (optional) describes a vendor extensions container for an **alternateRegister** element.
5. **accellera:bank** (optional) describes a vendor extensions container for a **bank** element.
6. **accellera:busInterface** (optional) describes a vendor extensions container for a **busInterface** element.
7. **accellera:busInterfaceRef** (optional) describes a vendor extensions container for a **busInterfaceRef** element.
8. **accellera:channel** (optional) describes a vendor extensions container for a **channel** element.
9. **accellera:constraintSetRef** (optional) describes a vendor extensions container for a **contraintSetRef** element.
10. **accellera:cpu** (optional) describes a vendor extensions container for a **cpu** element.
11. **accellera:field** (optional) describes a vendor extensions container for a **field** element.
12. **accellera:file** (optional) describes a vendor extensions container for a **file** element.
13. **accellera:fileSetRef** (optional) describes a vendor extensions container for a **fileSetRef** element.
14. **accellera:localMemoryMap** (optional) describes a vendor extensions container for a **localMemoryMap** element.
15. **accellera:memoryMap** (optional) describes a vendor extensions container for a **memoryMap** element.
16. **accellera:memoryRemap** (optional) describes a vendor extensions container for a **memoryRemap** element.
17. **accellera:moduleParameter** (optional) describes a vendor extensions container for a **moduleParameter** element.
18. **accellera:port** (optional) describes a vendor extensions container for a **port** element.
19. **accellera:portMap** (optional) describes a vendor extensions container for a **portMap** element.
20. **accellera:register** (optional) describes a vendor extensions container for a **register** element.
21. **accellera:registerFile** (optional) describes a vendor extensions container for a **registerFile** element.
22. **accellera:segment** (optional) describes a vendor extensions container for a **segment** element.
23. **accellera:subspaceMap** (optional) describes a vendor extensions container for a **subspaceMap** element.
24. **accellera:transparentBridge** (optional) describes a vendor extensions container for a **transparentBridge** element.
25. **accellera:typeParameter** (optional) describes a vendor extensions container for a **typeParameter** element.
26. **accellera:view** (optional) describes a vendor extensions container for a **view** element.
27. **accellera:clearboxElement** (optional) describes a vendor extensions container for a **clearboxElement** element**.**
28. **accellera:clearBoxElementRef** (optional) describes a vendor extensions container for a **clearboxElementRef** element

Each container element contains the following sub-element:

1. **accellera-cond:isPresent** (mandatory; type: ***unsignedBitExpression***) element describes whether the ipxact element enclosing the ipxact:vendorExtensions element is present in the document. If its value evaluates to 0 then the enclosing element is not present. If its value evaluates to 1 then the enclosing element is present.

## Example

This is an example of a component containing Accellera vendor extensions containers. The containers contain the **isPresent** element. In this example, value ‘P’ of the **isPresent** elements evaluates to 1, hence, the elements **addressSpaceRef**, **busInterface**, and **addressSpace** enclosing the **vendorExtensions** elements are present. Note that parameter P is user resolvable meaning that for different instances of this component the value of P can be different.

<?xml version="1.0"?>

<ipxact:component xmlns:ipxact="http://www.accellera.org/XMLSchema/IPXACT/1685-2022" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.accellera.org/XMLSchema/IPXACT/1685-2022 http://www.accellera.org/XMLSchema/IPXACT/1685-2022/index.xsd" xmlns:accellera="http://www.accellera.org/XMLSchema/IPXACT/1685-2022-VE" xmlns:accellera-cond="http://www.accellera.org/XMLSchema/IPXACT/1685-2022-VE/COND-1.0">

<ipxact:vendor>accellera.org</ipxact:vendor>

<ipxact:library>ipxact-wg</ipxact:library>

<ipxact:name>component</ipxact:name>

<ipxact:version>1.0</ipxact:version>

<ipxact:busInterfaces>

<ipxact:busInterface>

<ipxact:name>initiator</ipxact:name>

<ipxact:busType vendor="a" library="b" name="c" version="d"/>

<ipxact:initiator>

<ipxact:addressSpaceRef addressSpaceRef="AS">

<ipxact:vendorExtensions>

<accellera:addressSpaceRef>

<accellera-cond:isPresent>P</accellera-cond:isPresent>

</accellera:addressSpaceRef>

</ipxact:vendorExtensions>

</ipxact:addressSpaceRef>

</ipxact:initiator>

<ipxact:vendorExtensions>

<accellera:busInterface>

<accellera-cond:isPresent>P</accellera-cond:isPresent>

</accellera:busInterface>

</ipxact:vendorExtensions>

</ipxact:busInterface>

</ipxact:busInterfaces>

<ipxact:addressSpaces>

<ipxact:addressSpace>

<ipxact:name>AS</ipxact:name>

<ipxact:range>'h1000</ipxact:range>

<ipxact:width>32</ipxact:width>

<ipxact:vendorExtensions>

<accellera:addressSpace>

<accellera-cond:isPresent>1</accellera-cond:isPresent>

</accellera:addressSpace>

</ipxact:vendorExtensions>

</ipxact:addressSpace>

</ipxact:addressSpaces>

<ipxact:parameters>

<ipxact:parameter parameterId="P" resolve="user">

<ipxact:name>P</ipxact:name>

<ipxact:value>1</ipxact:value>

</ipxact:parameter>

</ipxact:parameters>

</ipxact:component>

# Accellera vendor extensions for abstractor

## Schema

The following schema defines the Accellera vendor extensions for an **abstractor** element.



## Description

The **abstractor** group defines the following Accellera vendor extensions containers inside an **abstractor** element:

1. **accellera:abstractorConstraintSetRef** (optional) describes a vendor extensions container for a **constraintSetRef** element.
2. **accellera:abstractorFile** (optional) describes a vendor extensions container for a **file** element.
3. **accellera:abstractorFileSetRef** (optional) describes a vendor extensions container for a **fileSetRef** element.
4. **accellera:abstractorPort** (optional) describes a vendor extensions container for a **port** element.
5. **accellera:abstractorPortMap** (optional) describes a vendor extensions container for a **portMap** element.
6. **accellera:abstractorModuleParameter** (optional) describes a vendor extensions container for a **moduleParameter** element.
7. **accellera:abstractorTypeParameter** (optional) describes a vendor extensions container for a **typeParameter** element.
8. **accellera:abstractorView** (optional) describes a vendor extensions container for a **view** element.
9. **accellera:abstractorClearboxElementRef** (optional) describes a vendor extensions container for a **clearboxElementRef** element.

Each container element contains the following sub-element:

1. **accellera-cond:isPresent** (mandatory; type: ***unsignedBitExpression***) element describes whether the ipxact element enclosing the ipxact:vendorExtensions element is present in the document. If its value evaluates to 0 then the enclosing element is not present. If its value evaluates to 1 then the enclosing element is present.

## Example

This is an example of an abstractor containing Accellera vendor extensions containers. The containers contain the **isPresent** element. In this example, the value of the **isPresent** elements evaluates to 1, hence, the elements **portMap**, **view**, and **port** enclosing the **vendorExtensions** element are present.

<?xml version="1.0"?>

<ipxact:abstractor xmlns:ipxact="http://www.accellera.org/XMLSchema/IPXACT/1685-2022" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.accellera.org/XMLSchema/IPXACT/1685-2022 http://www.accellera.org/XMLSchema/IPXACT/1685-2022/index.xsd" xmlns:accellera="http://www.accellera.org/XMLSchema/IPXACT/1685-2022-VE" xmlns:accellera-cond="http://www.accellera.org/XMLSchema/IPXACT/1685-2022-VE/COND-1.0">

<ipxact:vendor>accellera.org</ipxact:vendor>

<ipxact:library>ipxact\_wg</ipxact:library>

<ipxact:name>abstractor</ipxact:name>

<ipxact:version>1.0</ipxact:version>

<ipxact:abstractorMode>direct</ipxact:abstractorMode>

<ipxact:busType vendor="a" library="b" name="c" version="d"/>

<ipxact:abstractorInterfaces>

<ipxact:abstractorInterface>

<ipxact:name>target</ipxact:name>

<ipxact:abstractionTypes>

<ipxact:abstractionType>

<ipxact:abstractionRef vendor="a" library="b" name="c\_rtl" version="d"/>

<ipxact:portMaps>

<ipxact:portMap>

<ipxact:logicalPort>

<ipxact:name>ACLK</ipxact:name>

</ipxact:logicalPort>

<ipxact:physicalPort>

<ipxact:name>aclk</ipxact:name>

</ipxact:physicalPort>

<ipxact:vendorExtensions>

<accellera:abstractorPortMap>

<accellera-cond:isPresent>1</accellera-cond:isPresent>

</accellera:abstractorPortMap>

</ipxact:vendorExtensions>

</ipxact:portMap>

</ipxact:portMaps>

</ipxact:abstractionType>

</ipxact:abstractionTypes>

</ipxact:abstractorInterface>

<ipxact:abstractorInterface>

<ipxact:name>initiator</ipxact:name>

<ipxact:abstractionTypes>

<ipxact:abstractionType>

<ipxact:abstractionRef vendor="a" library="b" name="c" version="d"/>

</ipxact:abstractionType>

</ipxact:abstractionTypes>

</ipxact:abstractorInterface>

</ipxact:abstractorInterfaces>

<ipxact:model>

<ipxact:views>

<ipxact:view>

<ipxact:name>view</ipxact:name>

<ipxact:vendorExtensions>

<accellera:abstractorView>

<accellera-cond:isPresent>1</accellera-cond:isPresent>

</accellera:abstractorView>

</ipxact:vendorExtensions>

</ipxact:view>

</ipxact:views>

<ipxact:ports>

<ipxact:port>

<ipxact:name>aclk</ipxact:name>

<ipxact:wire>

<ipxact:direction>in</ipxact:direction>

</ipxact:wire>

<ipxact:vendorExtensions>

<accellera:abstractorPort>

<accellera-cond:isPresent>1</accellera-cond:isPresent>

</accellera:abstractorPort>

</ipxact:vendorExtensions>

</ipxact:port>

</ipxact:ports>

</ipxact:model>

</ipxact:abstractor>

# Accellera vendor extensions for design

## Schema

The following schema defines the Accellera vendor extensions for a **design** element.



## Description

The **design** group defines the following Accellera vendor extensions containers inside a **design** element:

1. **accellera:activeInterface** (optional) describes a vendor extensions container for an **activeInterface** element.
2. **accellera:adHocConnection** (optional) describes a vendor extensions container for an **adHocConnection** element.
3. **accellera:componentInstance** (optional) describes a vendor extensions container for a **componentInstance** element.
4. **accellera:externalPortReference** (optional) describes a vendor extensions container for an **externalPortReference** element.
5. **accellera:hierInterface** (optional) describes a vendor extensions container for an **hierInterface** element.
6. **accellera:interconnection** (optional) describes a vendor extensions container for an **interconnect** element
7. **accellera:internalPortReference** (optional) describes a vendor extensions container for an **internalPortReference** element.
8. **accellera:monitorInterconnection** (optional) describes a vendor extensions container for a **monitorInterconnection** element.
9. **accellera:monitorInterface** (optional) describes a vendor extensions container for a **monitorInterface** element.

Each container element contains the following sub-element:

1. **accellera-cond:isPresent** (mandatory; type: ***unsignedBitExpression***) element describes whether the ipxact element enclosing the ipxact:vendorExtensions element is present in the document. If its value evaluates to 0 then the enclosing element is not present. If its value evaluates to 1 then the enclosing element is present.

## Example

This is an example of a design containing an Accellera vendor extensions container. The container contains the **isPresent** element. In this example, the value of the **isPresent** element evaluates to 1, hence, the element **componentInstance** enclosing the **vendorExtensions** element is present.

<?xml version="1.0"?>

<ipxact:design xmlns:ipxact="http://www.accellera.org/XMLSchema/IPXACT/1685-2022" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.accellera.org/XMLSchema/IPXACT/1685-2022 http://www.accellera.org/XMLSchema/IPXACT/1685-2022/index.xsd" xmlns:accellera="http://www.accellera.org/XMLSchema/IPXACT/1685-2022-VE" xmlns:accellera-cond="http://www.accellera.org/XMLSchema/IPXACT/1685-2022-VE/COND-1.0">

<ipxact:vendor>accellera.org</ipxact:vendor>

<ipxact:library>ipxact-wg</ipxact:library>

<ipxact:name>design</ipxact:name>

<ipxact:version>1.0</ipxact:version>

<ipxact:componentInstances>

<ipxact:componentInstance>

<ipxact:instanceName>instance</ipxact:instanceName>

<ipxact:componentRef vendor="a" library="b" name="c" version="d"/>

<ipxact:vendorExtensions>

<accellera:componentInstance>

<accellera-cond:isPresent>1</accellera-cond:isPresent>

</accellera:componentInstance>

</ipxact:vendorExtensions>

</ipxact:componentInstance>

</ipxact:componentInstances>

</ipxact:design>

# Accellera vendor extensions for design configuration

## Schema

The following schema defines the Accellera vendor extensions for a **designConfiguration** element.



## Description

The **designConfiguration** group defines the following Accellera vendor extensions containers inside a **designConfiguration** element:

1. **accellera:abstractorInstances** (optional) describes a vendor extensions container for an **abstractorInstances** element.
2. **accellera:interconnectionConfiguration** (optional) describes a vendor extensions container for an **adHocConnection** element.
3. **accellera:interfaceRef** (optional) describes a vendor extensions container for an **interfaceRef** element.
4. **accellera:viewConfiguration** (optional) describes a vendor extensions container for a **viewConfiguration** element.

Each container element contains the following sub-element:

1. **accellera-cond:isPresent** (mandatory; type: ***unsignedBitExpression***) element describes whether the ipxact element enclosing the ipxact:vendorExtensions element is present in the document. If its value evaluates to 0 then the enclosing element is not present. If its value evaluates to 1 then the enclosing element is present.

## Example

This is an example of a design configuration containing Accellera vendor extensions containers. The containers contain the **isPresent** element. In this example, the value of the **isPresent** element evaluates to 1, hence, the elements **abstractorInstances**, **interconnectionConfiguration**, **interfaceRef**, and **viewConfiguration** enclosing the **vendorExtensions** element are present.

<?xml version="1.0"?>

<ipxact:designConfiguration xmlns:ipxact="http://www.accellera.org/XMLSchema/IPXACT/1685-2022" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.accellera.org/XMLSchema/IPXACT/1685-2022 http://www.accellera.org/XMLSchema/IPXACT/1685-2022/index.xsd" xmlns:accellera="http://www.accellera.org/XMLSchema/IPXACT/1685-2022-VE" xmlns:accellera-cond="http://www.accellera.org/XMLSchema/IPXACT/1685-2022-VE/COND-1.0">

<ipxact:vendor>accellera.org</ipxact:vendor>

<ipxact:library>ipxact-wg</ipxact:library>

<ipxact:name>designConfiguration</ipxact:name>

<ipxact:version>1.0</ipxact:version>

<ipxact:interconnectionConfiguration>

<ipxact:interconnectionRef>interconnection</ipxact:interconnectionRef>

<ipxact:abstractorInstances>

<ipxact:interfaceRef componentRef="a" busRef="b">

<ipxact:vendorExtensions>

<accellera:abstractorInterfaceRef>

<accellera-cond:isPresent>1</accellera-cond:isPresent>

</accellera:abstractorInterfaceRef>

</ipxact:vendorExtensions>

</ipxact:interfaceRef>

<ipxact:abstractorInstance>

<ipxact:instanceName>abstractorInstance</ipxact:instanceName>

<ipxact:abstractorRef vendor="a" library="b" name="c" version="d"/>

<ipxact:viewName>view</ipxact:viewName>

</ipxact:abstractorInstance>

<ipxact:vendorExtensions>

<accellera:abstractorInstances>

<accellera-cond:isPresent>1</accellera-cond:isPresent>

</accellera:abstractorInstances>

</ipxact:vendorExtensions>

</ipxact:abstractorInstances>

<ipxact:vendorExtensions>

<accellera:interconnectionConfiguration>

<accellera-cond:isPresent>1</accellera-cond:isPresent>

</accellera:interconnectionConfiguration>

</ipxact:vendorExtensions>

</ipxact:interconnectionConfiguration>

<ipxact:viewConfiguration>

<ipxact:instanceName>instance</ipxact:instanceName>

<ipxact:view viewRef="view"/>

<ipxact:vendorExtensions>

<accellera:viewConfiguration>

<accellera-cond:isPresent>1</accellera-cond:isPresent>

</accellera:viewConfiguration>

</ipxact:vendorExtensions>

</ipxact:viewConfiguration>

</ipxact:designConfiguration>