

## Fortress - Task #7527

### constant casting while type conversion

08/24/2016 10:33 AM - Sergey Smolov

<b>Status:</b>	Closed	<b>Start date:</b>	08/24/2016
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Sergey Smolov	<b>% Done:</b>	100%
<b>Category:</b>	Expression	<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>	0.4	<b>Published in build:</b>	0.4.21
<b>Detected in build:</b>	svn		

**Description**

Add an option to NodeOperation object constructor that encodes constants casting mode. By default an exception should be thrown when a "logic family" NodeOperation object (this family includes Boolean and arithmetical operations) has at least one non-constant operand of type that differ from at least one constant (NodeValue) operand's type. When the option is set, all the constant operands, which types are different from non-constant operand types, should be casted to corresponding types. This technique should be performed in a recursive way (for NodeOperation object and for all its NodeOperation operands and sub-...operands). The option should have different values for signed and unsigned extension of bit vector constants.

### History

#### #1 - 09/14/2016 01:24 PM - Sergey Smolov

- Status changed from New to Resolved

- % Done changed from 0 to 100

New methods have been implemented at TypeConversion and ConstCastRuleSet. Here they are:

TypeConversion:

```
/**
 * Converts the specified node to the specified data type with some constant casting if needed.
 * <p>If the specified node has the same data type as specified, no constant casting
 * is applied.</p>
 * @param node Node to be converted.
 * @param type Data type of the new node to be produced.
 * @param constCastType Constant operands casting mode.
 * @return A new node that has the specified data type but the rest of it's data are taken
 *         from the specified node. Constant sub-...operands are casted in correspondence
 *         with the specified mode.
 * @throws IllegalArgumentException when either node or data type argument is {@code null}.
 */
public static Node coerce(final Node node, final DataType type, final Enum<?> constCastType)
```

ConstCastRuleSet:

```
/**
 * Returns constant casting transformer for the specified casting type.
 * @param constCastType Constant casting type.
 * @return Transformer that performs constant operands casting.
 */
public static NodeTransformer getRuleSet(final Enum<?> constCastType)
```

The enum of const casting types has been added to TypeConversion class:

```
/**
 * Constant operands casting types.
 */
public enum ConstCast {

    /**
     * Signed casting for constant operands is required.
     */
}
```

```
SIGNED,
```

```
/**
```

```
 * Unsigned casting for constant operands is required (a default value).
```

```
 */
```

```
UNSIGNED,
```

```
}
```

Done in r1315.

**#2 - 09/14/2016 01:25 PM - Sergey Smolov**

- *Subject changed from constant casting option for NodeOperation constructor to constant casting while type conversion*

**#3 - 10/25/2016 10:35 AM - Andrei Tatarnikov**

- *Status changed from Resolved to Closed*

- *Published in build set to 0.4.21*