

getEdgeOfPcb

Returns an *interconnect_module_edge* representing the outline of the given *pcb*.

getThicknessOfPcb

Returns an representation containing the length tolerance characteristic of the given *layered_interconnect_module_usage_view* representing the *pcb* usage view.

getAllStrataInPcb

Returns an aggregate of all strata that compose the given *pcb*.

getAllSftcDirectlyRelatedToPcb

Returns an aggregate of all *stratum_feature_template_component* that are directly located on the given *pcb* through a *next_assembly_usage_occurrence_relationship*.

getAllMrlcDirectlyRelatedToPcb

Returns an aggregate of all *material_removal_laminate_component* that are directly located on the given *pcb* through a *next_assembly_usage_occurrence_relationship*.

getAllPadstackOccurrenceInPcb

Returns an aggregate of all *padstack_occurrence* that are directly located on the given *pcb* through a *next_assembly_usage_occurrence_relationship*.

getAllFootprintOccurrenceInPcb

Returns an aggregate of all *footprint_occurrence* that are directly located on the given *pcb* through a *next_assembly_usage_occurrence_relationship*.

getAllStructuredLayoutComponentsInStructuredLayoutComponent

Returns an aggregate of all *structured_layout_component* that are elements of the given *structured_layout_component*.

getAllLaminateComponentsInStructuredLayoutComponent

Returns an aggregate of all *laminate_components* that compose the *structured_layout_component*.

getAllMultiStratumSpecialSymbolComponentsInPcb

Returns an aggregate of all *multi_stratum_special_symbol_component* that are directly located on the given *Pcb* through a *next_assembly_usage_occurrence_relationship*.

getAllSingleStratumSpecialSymbolComponentsInPcb

Returns an aggregate of all *single_stratum_special_symbol_component* that are directly located on the given *Pcb* through a *next_assembly_usage_occurrence_relationship*.

getAllLaminateTextStringComponents

Returns an aggregate of all *laminate_text_string_component* that are directly located on the given *pcb* through a *next_assembly_usage_occurrence*.

getAllLaminateTextStringNAUOR

Returns an aggregate of *next_assembly_usage_occurrence_relationship* that represent instances of *laminate_text_string_component* composing the given *layered_interconnect_module_design_view (pcb)*.

getMessageOfLaminateTextStringComponent

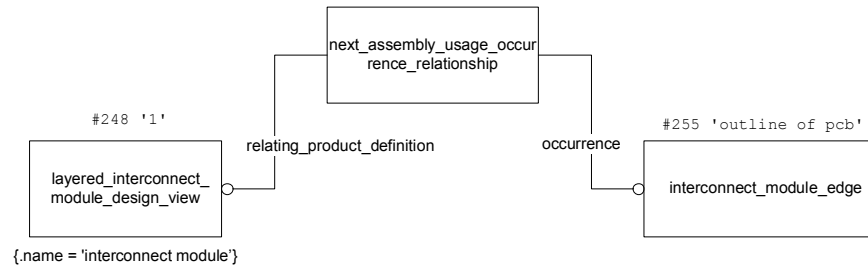
Returns text literal containing the 'message contents' for the given *laminate_text_string_component*.

getGenericLaminateTextComponentsForLTSC

Returns an aggregate of all *generic_laminate_text_components* that compose a given *laminate_text_string_component*.

getAllGenericPhysicalNetworksInPcb

Returns an aggregate of all *generic_physical_network* that are currently associated with the given *pcb*.



// Returns an Interconnect_module_edge representing the outline of the given layered_interconnect_module_design_view (Pcb)

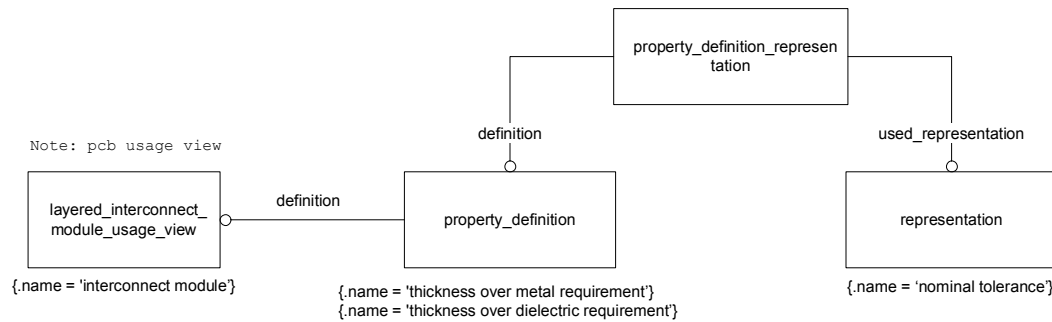
interconnect_module_edge getEdgeOfPcb(layered_interconnect_module_design_view id)

```

{
  Interconnect_module_edge ime = relatedEntityOp(id)
  where {next_assembly_usage_occurrence_relationship nauor}
        {id<-nauor.relying_product_definition}
        {nauor.occurrence->ime}

  return ime
}

```



*// Returns an representation containing the length tolerance characteristic of the given layered_interconnect_module_usage_view
 // representing the pcb usage view.*

*// Note that both the 'thickness over metal requirement' and the 'thickness over dielectric requirement'
 // are optional.*

// Given: String propertyName – either 'thickness over metal requirement' or 'thickness over dielectric requirement'

```

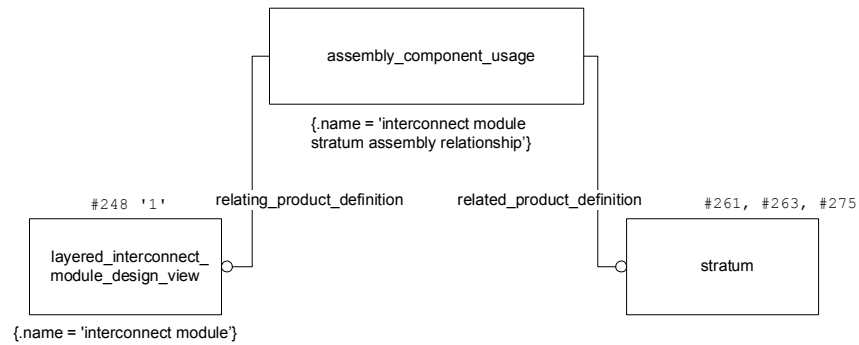
representation getThicknessOfPcb(layered_interconnect_module_usage_view id, String propertyName)
{
    property_definition pd referencingEntityOp(id, propertyName)
    where {id<-pd.definition}
        {pd.name = propertyName}

    if (pd == null)
        return null

    representation r = relatedEntityOp(pd)
    where {property_definition_representation pdr}
        {pdr.definition->pd}
        {dpr.used_representation->r}

    return r
}

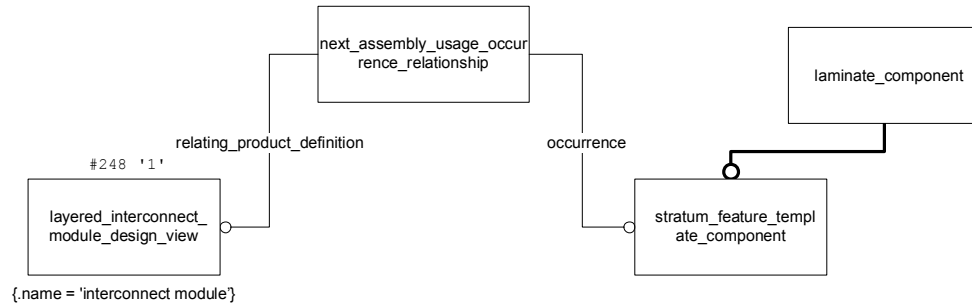
```



// Returns an aggregate of all strata that compose the given layered_interconnect_module_design_view (Pcb).

```
Aggregate<stratum> getAllStrataInPcb(layered_interconnect_module_design_view id)
{
    Aggregate<stratum> a_stratum = relatedEntitiesOp(id)
    where {assembly_component_usage acu}
        {stratum s}
        {id<-acu.relating_product_definition}
        {acu.related_product_definition->s}
        {acu.name = 'interconnect module stratum assembly relationship'}

    return a_stratum
}
```

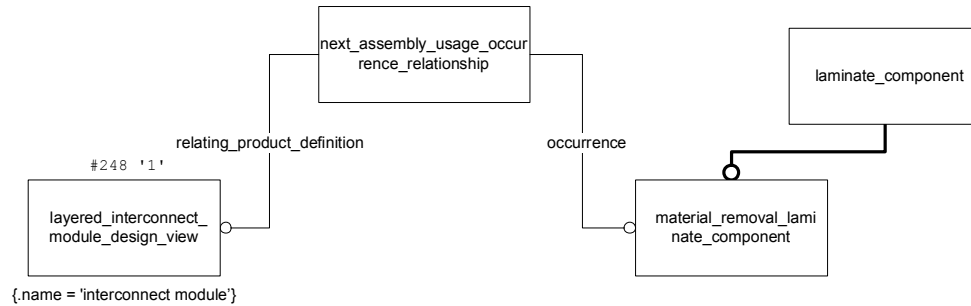


*// Returns an aggregate of all stratum_feature_template_component that are directly located on the given layered_interconnect_module_design_view (Pcb)
// through a next_assembly_usage_occurrence_relationship.*

```

Aggregate<stratum_feature_template_component> getAllSftcDirectlyRelatedToPcb(layered_interconnect_module_design_view id)
{
  Aggregate<stratum_feature_template_component> a_sftc = relatedEntitiesOp(id)
  where {next_assembly_usage_occurrence_relationship nauor}
        {stratum_feature_template_component sftc}
        {id<-nauor.relying_product_definition}
        {nauor.occurrence->sftc}

  return a_sftc
}
  
```



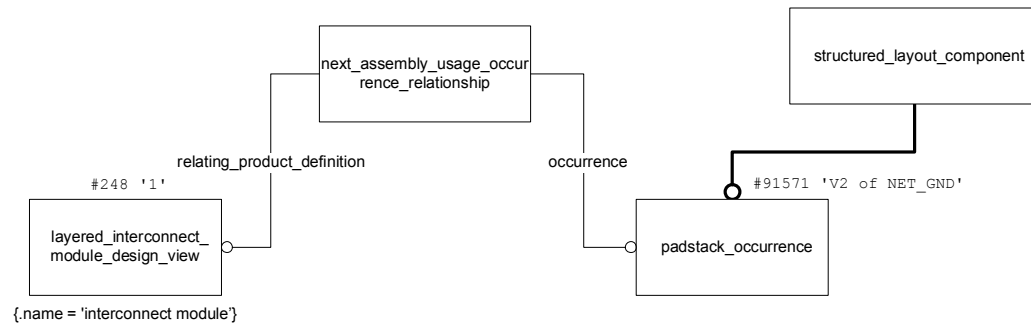
// Returns an aggregate of all material_removal_laminate_component that are directly located on the given
layered_interconnect_module_design_view
// (Pcb) through a next_assembly_usage_occurrence_relationship.

```

Aggregate<material_removal_laminate_component> getAllMrlcDirectlyRelatedToPcb(layered_interconnect_module_design_view id)
{
    Aggregate<material_removal_laminate_component> a_mrlc = relatedEntitiesOp(id)
    where {next_assembly_usage_occurrence_relationship nauor}
        {material_removal_laminate_component mrlc}
        {id<-nauor.relatng_product_definition}
        {nauor.occurrence->mrlc}

    return a_mrlc
}

```



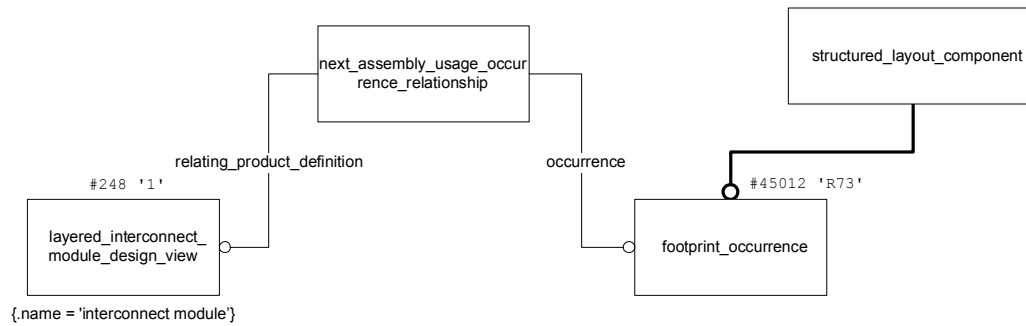
*// Returns an aggregate of all padstack_occurrence that are directly located on the given interconnect_defintion (Pcb) through a
// next_assembly_usage_occurrence_relationship.*

```

Aggregate<padstack_occurrence> > getAllPadstackOccurrenceInPcb(layered_interconnect_module_design_view id)
{
  Aggregate<padstack_occurrence> a_po = relatedEntitiesOp(id)
  where {next_assembly_usage_occurrence_relationship nauor}
    {padstack_occurrence po}
    {id<-nauor.relying_product_definition}
    {nauor.occurrence->po}

  return a_po
}

```

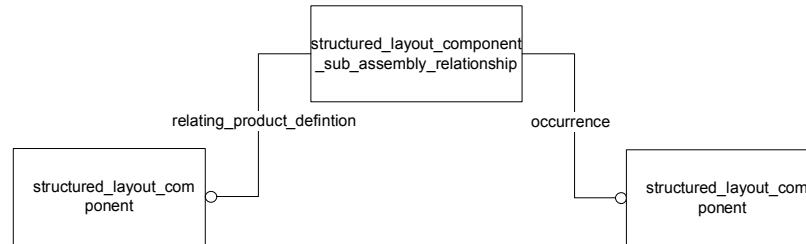


// Returns an aggregate of all footprint_occurrence that are directly located on the given interconnect_defintion (Pcb) through a
// next_assembly_usage_occurrence_relationship.

```

Aggregate<footprint_occurrence> getAllFootprintOccurrenceInPcb(layered_interconnect_module_design_view id)
{
  Aggregate<footprint_occurrence> a_fo = relatedEntitiesOp(id)
  where {next_assembly_usage_occurrence_relationship nauor}
        {footprint_occurrence fo}
        {id<-nauor.relating_product_definition}
        {nauor.occurrence->fo}

  return a_fo
}
  
```

// Returns an aggregate of all structured_layout_component that are elements of the given structured_layout_component

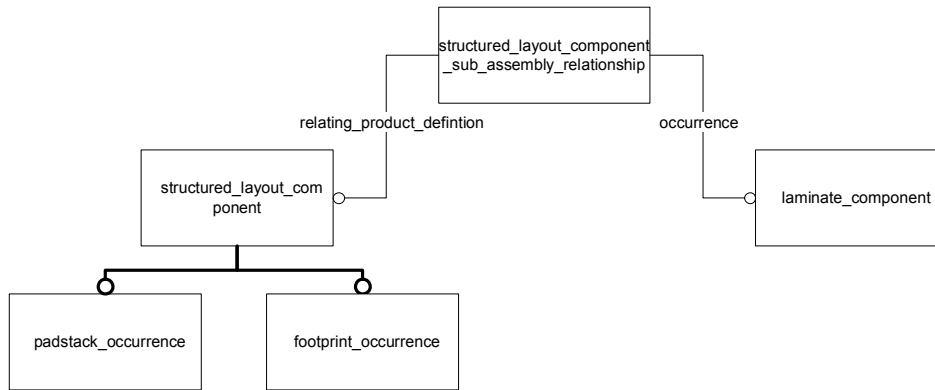
Aggregate<structured_layout_component> getAllStructuredLayoutComponentsInStructuredLayoutComponent(
structured_layout_component slc)

```

{
    Aggregate<structured_layout_component> a_slc = relatedEntitiesOp(given_slc)
    where {structured_layout_component_sub_assembly_relationship slcsar}
        {structured_layout_component e_slc}
        {given_slc<-slcsar.relying_product_definition}
        {slcsar.occurrence->e_slc}

    return a_slc
}

```



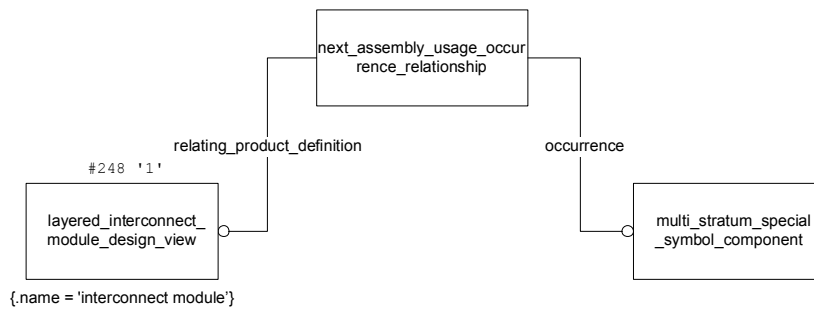
// Returns an aggregate of all laminate_components that compose the structured_layout_component

```

Aggregate<laminate_component> getAllLaminateComponentsInStructuredLayoutComponent(structured_layout_component slc)
{
    Aggregate<laminate_component> a_lc = relatedEntitiesOp(slc)
    where {structured_layout_component_sub_assembly_relationship slcsar}
        {laminate_component lc}
        {slc<-slcsar.relying_product_definition}
        {slcsar.occurrence->lc}

    return a_lc
}

```

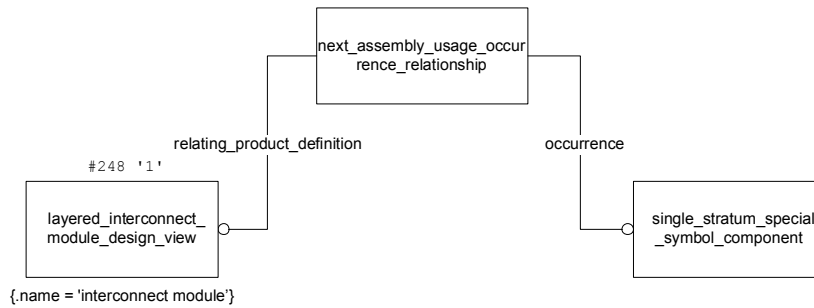


// Returns an aggregate of all multi_stratum_special_symbol_component that are directly located on the given
 // Pcb through a next_assembly_usage_occurrence_relationship.

```

Aggregate<multi_stratum_special_symbol_component>
getAllMultiStratumSpecialSymbolComponentsInPcb(layered_interconnect_module_design_view id)
{
    Aggregate<multi_stratum_special_symbol_component> a_msssc = relatedEntitiesOp(id)
    where {next_assembly_usage_occurrence_relationship nauor}
        {multi_stratum_special_symbol_component msssc}
        {id<-nauor.relying_product_definition}
        {nauor.occurrence->msssc}

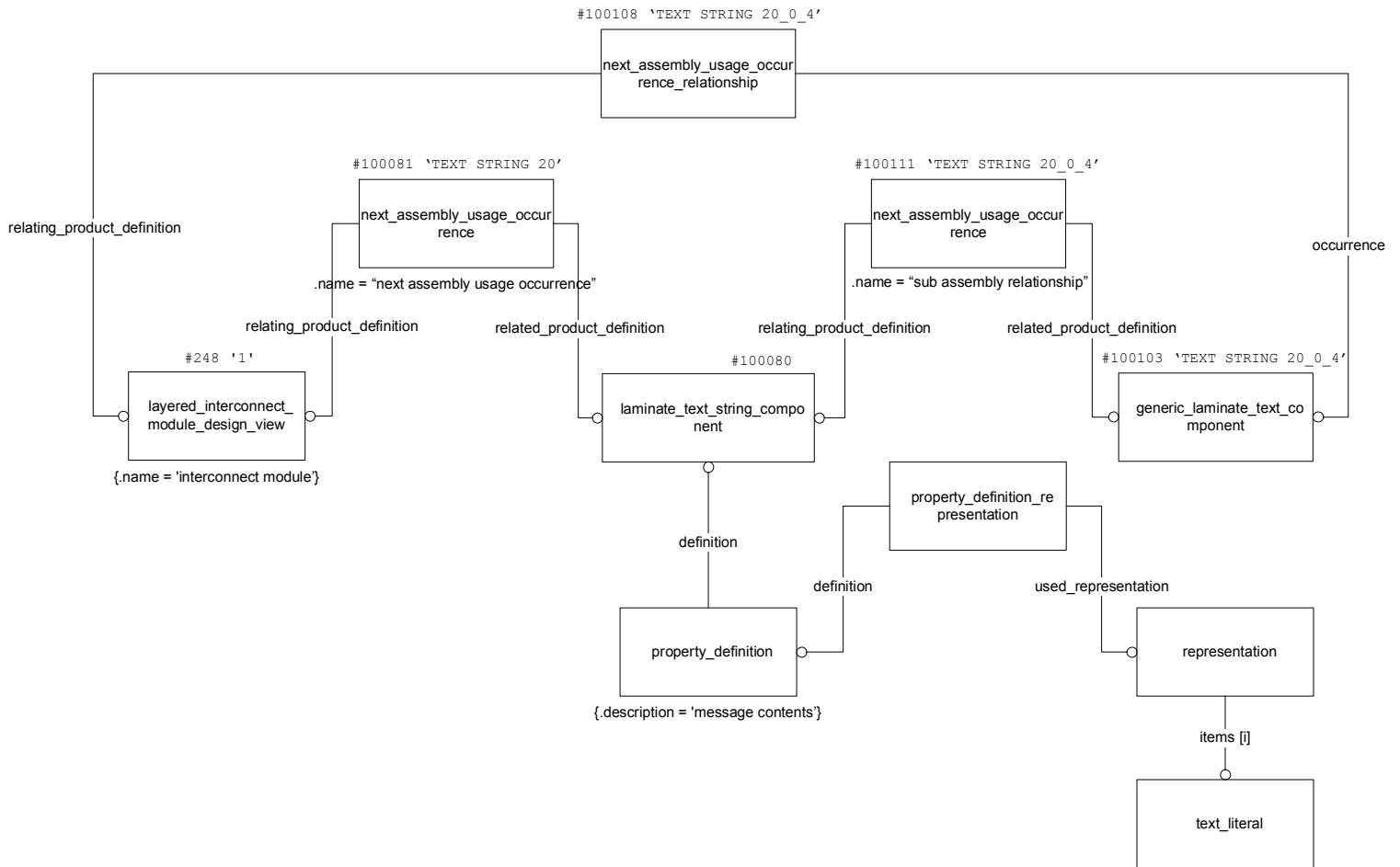
    return a_msssc
}
    
```



*// Returns an aggregate of all single_stratum_special_symbol_component that are directly located on the given
// Pcb through a next_assembly_usage_occurrence_relationship.*

```
Aggregate<single_stratum_special_symbol_component> getAllSingleStratumSpecialSymbolComponentsInPcb(
    layered_interconnect_module_design_view id)
{
    Aggregate<single_stratum_special_symbol_component> a_ssssc = relatedEntitiesOp(id)
    where {next_assembly_usage_occurrence_relationship nauor}
        {single_stratum_special_symbol_component ssssc}
        {id<-nauor.relying_product_definition}
        {nauor.occurrence->ssssc}

    return a_ssssc
}
```



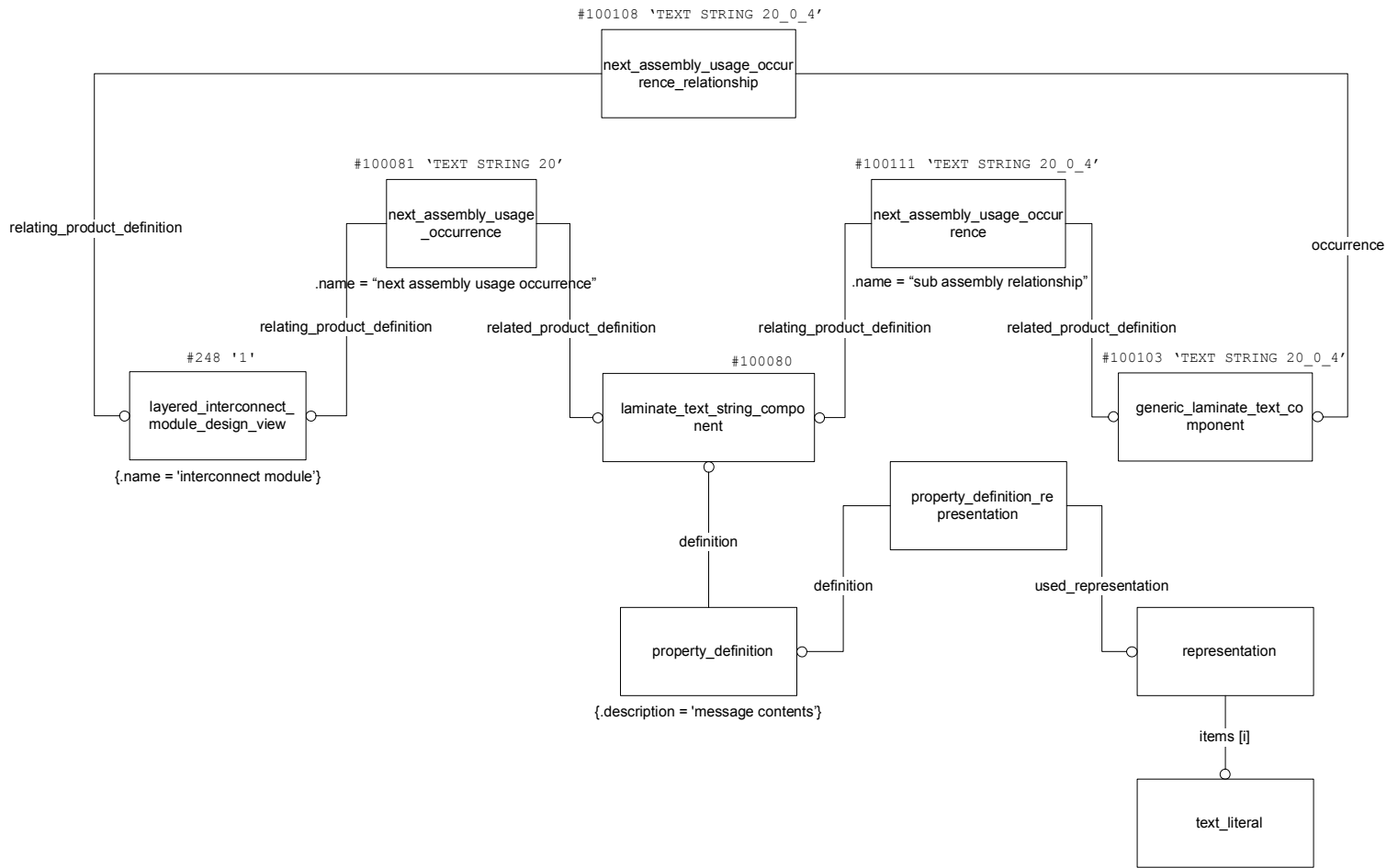
// Returns an aggregate of all laminate_text_string_component that are directly located on the given
layered_interconnect_module_design_view (Pcb)
// through a next_assembly_usage_occurrence.

```

Aggregate<laminate_text_string_component> getAllLaminateTextStringComponents(layered_interconnect_module_design_view id)
{
    Aggregate<laminate_text_string_component> a_lts = relatedEntitiesOp(id)
    where {next_assembly_usage_occurrence nauo}
        {nauo.name = 'next assembly usage occurrence'}
        {laminate_text_string_component ltsc}
        {id<-nauo.relying_product_definition}
        {nauo.related_product_definition->ltsc}

    return a_lts
}

```



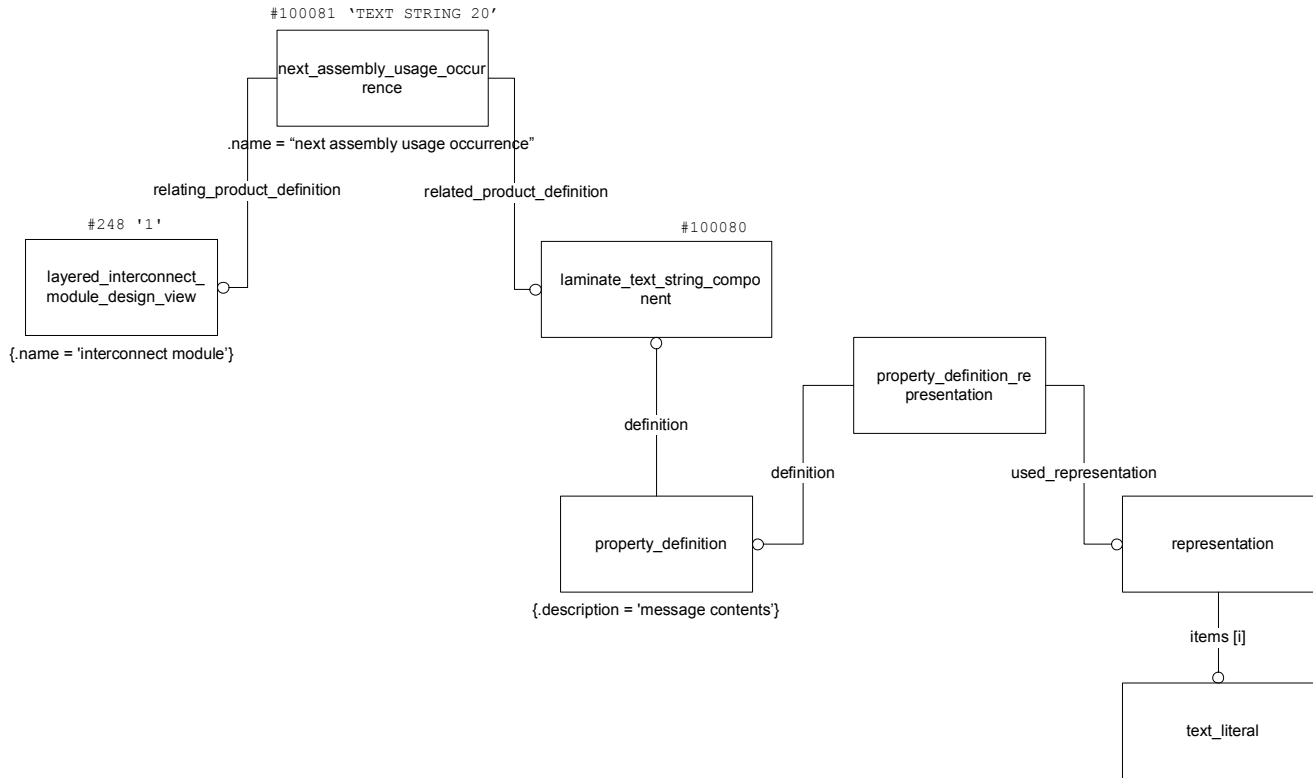
// Returns an aggregate of next_assembly_usage_occurrence_relationship that represent instances of
 // laminate_text_string_component composing the given layered_interconnect_module_design_view (pcb).

```

Aggregate<next_assembly_usage_occurrence_relationship>
  getAllLaminateTextStringNAUOR(layered_interconnect_module_design_view e_id)

{
  Aggregate<next_assembly_usage_occurrence_relationship> a_relationship = referencingEntitiesOp(pcb)
  where {next_assembly_usage_occurrence_relationship e_nauor}
  {pcb <- e_nauor.relying_product_definition}

  For each next_assembly_usage_occurrence_relationship e_nauor in a_relationship
  {
    If (e_nauor.occurrence is instance of laminate_text_string_component)
    {
      add e_nauor to a_return
    }
  }
  return a_return;
}
  
```



// Returns text literal containing the 'message contents' for the given laminate_text_string_component

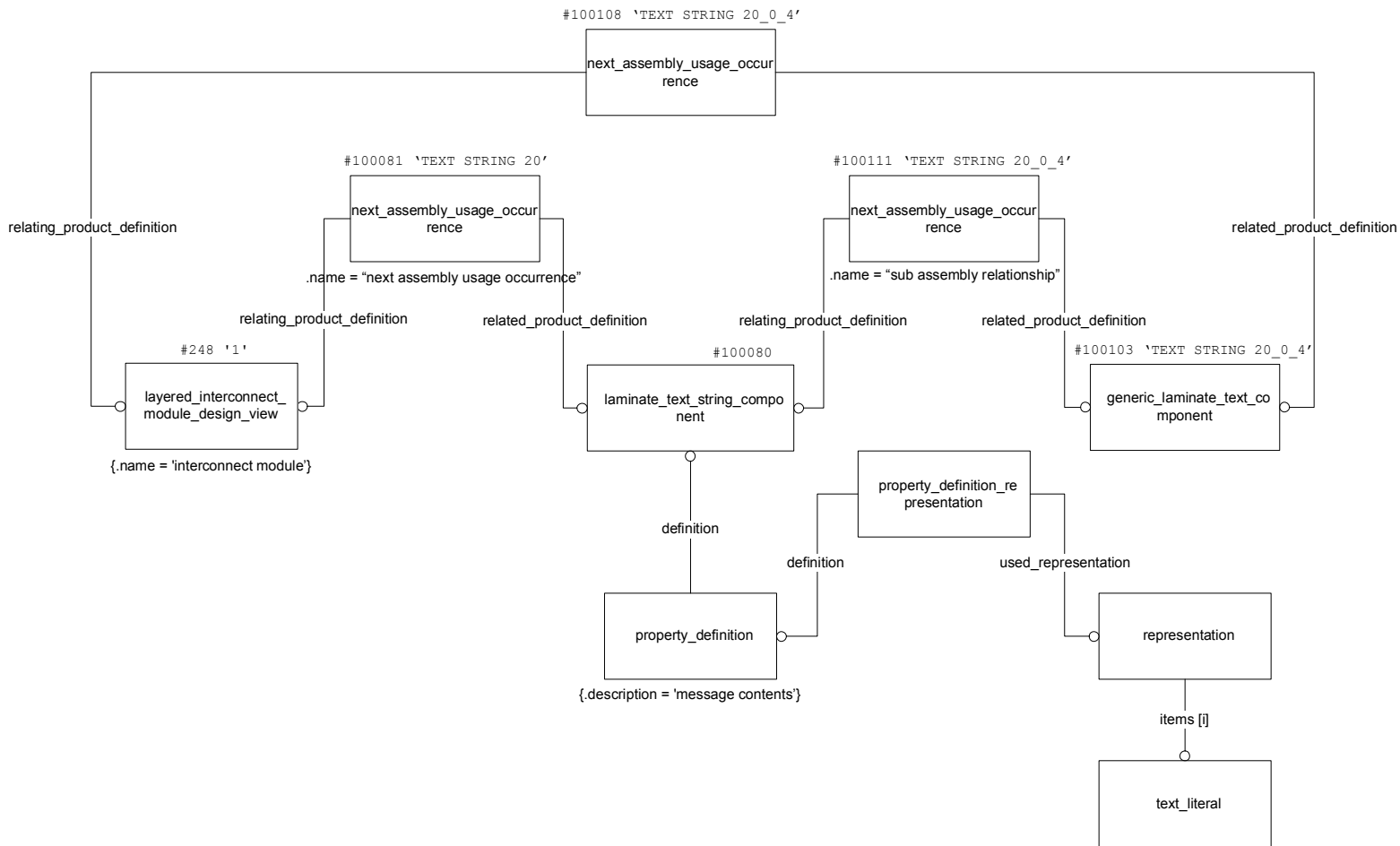
```

text_literal getMessageOfLaminateTextStringComponent(laminate_text_string_component e_ltsc)
{
    property_definition e_pd = referencingEntityOp(e_ltsc)
    where {e_pd.definition->ltsc}
    {e_pd.description = 'message contents'}

    representation e_r = relatedEntityOp(pd)
    where {property_definition_representation pdr}
    {pdr.definition->pd}
    {pdr.representation->used_representation}

    text_literal e_tl = referencedEntityOp(e_r)
    where {e_r.items Contains e_tl}

    return e_tl
}
  
```

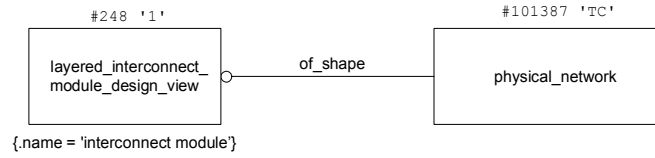


// Returns an aggregate of all generic_laminate_text_components that compose a given laminate_text_string_component.

```

Aggregate<generic_laminate_text_component> getGenericLaminateTextComponentsForLTSC(laminate_text_string_component ltsc)
{
    Aggregate<generic_laminate_text_component> a_gltc = relatedEntitiesOp(ltsc)
    where {next_assembly_usage_occurrence nauo}
        {nauo.name = 'sub assembly relationship'}
        {generic_laminate_text_component gltc}
        {ltsc<-nauor.relatng_product_definition}
        {nauor.related_product_definition->gltc}

    return a_gltc
}
  
```

// Returns an aggregate of all physical_networks that are currently associated with the given layered_interconnect_module_design_view (Pcb).

```

Aggregate<physical_network> getAllPhysicalNetworksInPcb(layered_interconnect_module_design_view id)
{
    Aggregate<physical_network> a_pn = referencingEntitiesOp(id)
    where {physical_network pn}
        {id<-pn.of_shape}

    return a_gpn
}
  
```