```
pointer:0x7f7d26dcb010
SgSourceFile
```

```
root node
```

```
SgNode* p_parent: 0x268c080
bool p isModified: 1
bool p containsTransformation: 0
$CLASSNAME* p_freepointer : 0xfffffffffffff
Sq File Info* p startOfConstruct: 0x7f7d3288a080
SgStringList p_originalCommandLineArgumentList : [pdfGenerator, -c, derived_record.ads]
int p_verbose: 0
bool p_output_warnings: 0
bool p_C_only: 0
bool p_Cxx_only: 0
bool p Fortran only: 0
bool p_CoArrayFortran_only: 0
int p upc threads: 0
bool p_Java_only: 0
bool p_Jovial_only: 0
bool p X10 only: 0
bool p_PHP_only: 0
bool p Python only: 0
bool p_Cuda_only: 0
bool p_OpenCL_only: 0
bool p_Csharp_only: 0
bool p_Ada_only: 1
bool p Cobol only: 0
bool p_requires_C_preprocessor: 0
bool p binary only: 0
SgFile::outputFormatOption enum p inputFormat: 2
SgFile::outputFormatOption_enum p_outputFormat : 2
SgFile::outputFormatOption_enum p_backendCompileFormat : 2
bool p_fortran_implicit_none: 0
bool p_openmp: 0
bool p_openmp_parse_only: 1
bool p_openmp_ast_only: 0
bool p openmp lowering: 0
bool p_openacc: 0
bool p_openacc_parse_only: 0
bool p_openacc_ast_only: 0
bool p_cray_pointer_support: 0
bool p_failsafe: 0
bool p_output_parser_actions: 0
bool p_exit_after_parser: 0
bool p_skip_syntax_check: 0
bool p skip parser: 0
bool p_relax_syntax_check: 0
bool p_skip_translation_from_edg_ast_to_rose_ast : 0
bool p_skip_transformation: 0
bool p_skip_unparse: 0
bool p skipfinalCompileStep: 0
bool p_unparse_includes: 0
bool p_unparse_line_directives: 0
bool p_unparse_function_calls_using_operator_syntax: 0
bool p_unparse_function_calls_using_operator_names: 0
bool p unparse instruction addresses: 1
bool p_unparse_raw_memory_contents: 1
bool p unparse binary file format: 1
SgFile::languageOption_enum p_outputLanguage : 12
SgFile::languageOption_enum p_inputLanguage : 12
std::string p_sourceFileNameWithPath:/home/liao6/workspace/ada-to-cpp-FY21/rose-ast/ada/derived_record.ads
std::string p_sourceFileNameWithoutPath : derived_record.ads
std::string p_unparse_output_filename:
std::string p_objectFileNameWithPath:
std::string p_objectFileNameWithoutPath:
bool p useBackendOnly: 0
```

pointer:0x7f7d32801128 SgGlobal /home/liao6/workspace/ada-to-cpp-FY21/rose-ast/ada/derived_record.ads 0:0 IsTransformation:0 IsOutputInCodeGeneration:0

```
SgNode* p_parent : 0x7f7d26dcb010
bool p_isModified: 1
bool p_containsTransformation: 0
Sg_File_Info* p_startOfConstruct : 0x7f7d3288a0f0
Sg_File_Info* p_endOfConstruct : 0x7f7d3288a160
AttachedPreprocessingInfoType* p_attachedPreprocessingInfoPtr: 0
AstAttributeMechanism* p_attributeMechanism: 0
bool p_containsTransformationToSurroundingWhitespace: 0
SgLabelRefExp* p_numeric_label: 0
int p_source_sequence_value: 0
SgSymbolTable* p_symbol_table: 0x7f7d327ab170
SgTypeTable* p_type_table : 0x26c6b08
std::set<SgSymbol*> p_type_elaboration_list : []
std::set<SgSymbol*> p_hidden_type_list : []
std::set<SgSymbol*> p_hidden_declaration_list : []
SgPragma* p_pragma: 0
SgDeclarationStatementPtrList p_declarations : [0x7f7d26827010]
```

pointer:0x7f7d26827010 SgAdaPackageSpecDecl Derived_Record.ads 1:1 IsTransformation:0 IsOutputInCodeGeneration:1

Declaration mangled name: ada\$pkg\$Derived_Record

Click here to go to the parent node

SgName p_name : Derived_Record

SgAdaPackageSpec* p_definition: 0x7f7d26d3e130 SgScopeStatement* p_scope : 0x7f7d32801128

```
SgNode* p_parent : 0x7f7d32801128
bool p_isModified: 1
bool p_containsTransformation: 0
Sg_File_Info* p_startOfConstruct : 0x7f7d3288a860
Sg_File_Info* p_endOfConstruct : 0x7f7d3288a8d0
AttachedPreprocessingInfoType* p_attachedPreprocessingInfoPtr: 0
AstAttributeMechanism* p_attributeMechanism: 0
bool p containsTransformationToSurroundingWhitespace: 0
SgLabelRefExp* p_numeric_label: 0
int p_source_sequence_value: 1
unsigned int p_decl_attributes: 0
std::string p_linkage:
SgDeclarationModifier p_declarationModifier: <too long>: <too long>: SgDeclarationModifier(isUnknown() = false isDefault() = true isFrien
bool p_nameOnly: 0
bool p_forward: 0
bool p_externBrace: 0
bool p_skipElaborateType: 0
SgDeclarationStatement* p_definingDeclaration: 0
SgDeclarationStatement* p_firstNondefiningDeclaration: 0x7f7d26827010
SgQualifiedNamePtrList p_qualifiedNameList : []
std::string p_binding_label:
SgDeclarationScope* p_declarationScope : 0
```

pointer:0x7f7d26d3e130 SgAdaPackageSpec transformation 0:0 IsTransformation:1 IsOutputInCodeGeneration:1

```
SgNode* p_parent : 0x7f7d26827010
bool p isModified: 1
bool p_containsTransformation: 0
Sg File Info* p startOfConstruct: 0x7f7d3288a5c0
Sg_File_Info* p_endOfConstruct : 0x7f7d3288a630
AttachedPreprocessingInfoType* p_attachedPreprocessingInfoPtr: 0
AstAttributeMechanism* p_attributeMechanism: 0
bool p_containsTransformationToSurroundingWhitespace: 0
SgLabelRefExp* p_numeric_label: 0
int p_source_sequence_value: 2
SgSymbolTable* p_symbol_table: 0x7f7d327ab4e0
SgTypeTable* p_type_table: 0x26c6b80
std::set<SgSymbol*> p_type_elaboration_list : []
std::set<SgSymbol*> p_hidden_type_list : []
std::set<SgSymbol*> p_hidden_declaration_list : []
SgPragma* p_pragma: 0
SgAdaPackageBody* p_body: 0
SgDeclarationStatementPtrList p_declarations: [0x7f7d262e1388, 0x7f7d262e1a78]
```

```
pointer:0x7f7d262e1388
SgClassDeclaration
transformation 0:0
IsTransformation:1
IsOutputInCodeGeneration:1
Declaration mangled name: L0R
```

bool p_explicit_interface: 0
bool p_explicit_enum: 0
bool p_explicit_anonymous: 0
SgExprListExp* p_decoratorList: 0
int p_name_qualification_length: 0
bool p_type_elaboration_required: 0
bool p_global_qualification_required: 0
bool p_isAutonomousDeclaration: 1

bool p_isRepresentingTemplateParameterInTemplateDeclaration: 0

```
SgNode* p_parent: 0x7f7d26d3e130
bool p isModified: 1
bool p_containsTransformation: 0
Sg_File_Info* p_startOfConstruct : 0x7f7d3288b190
Sg_File_Info* p_endOfConstruct : 0x7f7d3288b200
AttachedPreprocessingInfoType* p_attachedPreprocessingInfoPtr: 0
AstAttributeMechanism* p_attributeMechanism: 0
bool p containsTransformationToSurroundingWhitespace: 0
SgLabelRefExp* p_numeric_label: 0
int p_source_sequence_value: 3
unsigned int p_decl_attributes: 0
std::string p_linkage:
SqDeclarationModifier p_declarationModifier : <too long>: <too long>: SqDeclarationModifier(isUnknown() = false isDefault() = true isFrien
bool p_nameOnly: 0
bool p_forward: 0
bool p_externBrace: 0
bool p_skipElaborateType: 0
SgDeclarationStatement* p_definingDeclaration: 0x7f7d262e1388
SgDeclarationStatement* p_firstNondefiningDeclaration: 0x7f7d262e1010
SgQualifiedNamePtrList p_qualifiedNameList : []
std::string p binding label:
SgDeclarationScope* p_declarationScope : 0
SgName p_name: Tagged_Record
SgClassDeclaration::class_types p_class_type : 1
SgClassType* p_type: 0x7f7d262a2010
SgClassDefinition* p_definition: 0x7f7d26747010
SgScopeStatement* p_scope : 0x7f7d26d3e130
SgDeclarationStatement::template_specialization_enum p_specialization: 1
bool p from template: 0
bool p_fixupScope: 0
bool p_isUnNamed: 0
bool p_explicit_annotation_interface: 0
```

pointer:0x7f7d26747010 SgClassDefinition transformation 0:0 IsTransformation:1 IsOutputInCodeGeneration:1

bool p_isPrivate : 0 bool p_isAbstract : 0

```
SgNode* p_parent: 0x7f7d262e1388
bool p isModified: 1
bool p_containsTransformation: 0
Sg_File_Info* p_startOfConstruct : 0x7f7d3288a940
Sg_File_Info* p_endOfConstruct : 0x7f7d3288a9b0
AttachedPreprocessingInfoType* p_attachedPreprocessingInfoPtr: 0
AstAttributeMechanism* p_attributeMechanism: 0
bool p_containsTransformationToSurroundingWhitespace: 0
SgLabelRefExp* p_numeric_label: 0
int p_source_sequence_value: 4
SgSymbolTable* p_symbol_table: 0x7f7d327ab640
SgTypeTable* p_type_table : 0x26c6ba8
std::set<SgSymbol*> p_type_elaboration_list : []
std::set<SgSymbol*> p_hidden_type_list : []
std::set<SgSymbol*> p_hidden_declaration_list : []
SgPragma* p_pragma: 0
SgDeclarationStatementPtrList p_members : [0x7f7d26493010]
SgBaseClassPtrList p_inheritances : []
unsigned int p packingAlignment: 0
bool p_isSequence: 0
```

```
Declaration mangled name: L0R_variable_declaration_variable_type_i_variable_name_L0R_scope_Component_1
  Click here to go to the parent node
SqNode* p parent : 0x7f7d26747010
bool p isModified: 1
bool p_containsTransformation: 0
Sg_File_Info* p_startOfConstruct : 0x7f7d3288afd0
Sg_File_Info* p_endOfConstruct : 0x7f7d3288b040
AttachedPreprocessingInfoType* p_attachedPreprocessingInfoPtr: 0
AstAttributeMechanism* p_attributeMechanism: 0
bool p containsTransformationToSurroundingWhitespace: 0
SgLabelRefExp* p_numeric_label: 0
int p_source_sequence_value: 5
unsigned int p decl attributes: 0
std::string p_linkage:
SqDeclarationModifier p_declarationModifier : <too long>: <too long>: SqDeclarationModifier(isUnknown() = false isDefault() = true isFrien
bool p_nameOnly: 0
bool p_forward: 0
bool p externBrace: 0
bool p_skipElaborateType: 0
SgDeclarationStatement* p definingDeclaration: 0
SgDeclarationStatement* p_firstNondefiningDeclaration: 0x7f7d26493010
SgQualifiedNamePtrList p qualifiedNameList: []
std::string p binding label:
SgDeclarationScope* p_declarationScope : 0
SgDeclarationStatement* p_baseTypeDefiningDeclaration: 0
SgInitializedNamePtrList p_variables : [0x7f7d26649010]
bool p_variableDeclarationContainsBaseTypeDefiningDeclaration: 0
SqDeclarationStatement::template specialization enum p specialization: 1
bool p_requiresGlobalNameQualificationOnType: 0
std::string p_gnu_extension_section :
std::string p_gnu_extension_alias :
unsigned short p_gnu_extension_initialization_priority: 0
SgDeclarationStatement::gnu_extension_visability_attribute_enum p_gnu_extension_visability: 1
SgVariableDeclaration::gnu_extension_declaration_attributes_enum p_gnu_extension_declaration_attribute: 1
int p_name_qualification_length: 0
bool p_type_elaboration_required: 0
bool p_global_qualification_required: 0
bool p_isAssociatedWithDeclarationList: 0
bool p isFirstDeclarationOfDeclarationList: 1
bool p_is_thread_local: 0
bool p_is_constexpr: 0
bool p builtFromUseOnly: 0
```

pointer:0x7f7d26493010 SgVariableDeclaration transformation 0:0 IsTransformation:1

IsOutputInCodeGeneration:1

```
pointer:0x7f7d26649010
SgInitializedName
transformation 0:0
IsTransformation:1
IsOutputInCodeGeneration:1
```

```
SgNode* p parent : 0x7f7d26493010
bool p isModified: 0
bool p containsTransformation: 0
Sg File Info* p startOfConstruct: 0x7f7d3288acc0
Sg_File_Info* p_endOfConstruct : 0x7f7d3288ad30
AttachedPreprocessingInfoType* p_attachedPreprocessingInfoPtr : 0
AstAttributeMechanism* p_attributeMechanism: 0
bool p containsTransformationToSurroundingWhitespace: 0
SqName p name: Component 1
std::string p_microsoft_uuid_string:
SgType* p_typeptr : 0x7f7d26d03010
SgInitializer* p initptr: 0
SgInitializedName* p_prev_decl_item: 0
bool p is initializer: 1
SqDeclarationStatement* p_declptr: 0
SgStorageModifier* p_storageModifier: 0x27b37d0
SgScopeStatement* p_scope : 0x7f7d26747010
SgInitializedName::preinitialization_enum p_preinitialization: 0
bool p isCoArray: 0
SqInitializedName::asm register name enum p register name code: 0
SgInitializedName::excess specifier enum p excess specifier: 0
std::string p register name string:
bool p_requiresGlobalNameQualificationOnType: 0
bool p shapeDeferred: 0
bool p initializationDeferred: 0
unsigned long int p_gnu_attribute_initialization_priority: 0
std::string p gnu attribute named weak reference:
std::string p gnu attribute named alias:
std::string p_gnu_attribute_cleanup_function:
std::string p_gnu_attribute_section_name :
int p_gnu_attribute_alignment : -1
SqDeclarationModifier::gnu declaration visability enum p gnu attribute visability: 0
bool p_protected_declaration: 0
int p_name_qualification_length: 0
bool p_type_elaboration_required: 0
bool p_global_qualification_required: 0
int p name qualification length for type: 0
bool p_type_elaboration_required_for_type: 0
bool p_global_qualification_required_for_type: 0
bool p hasArrayTypeWithEmptyBracketSyntax: 0
bool p_using_C11_Alignas_keyword: 0
SqNode* p constant or type argument for Alignas keyword: 0
bool p_using_auto_keyword: 0
SgType * p_auto_decltype : 0
bool p_using_device_keyword: 0
bool p_is_braced_initialized: 0
bool p using assignment copy constructor syntax: 0
bool p needs definitions: 0
bool p is parameter pack: 0
bool p is pack element: 0
```

```
pointer:0x7f7d262e1a78
SgClassDeclaration
transformation 0:0
IsTransformation:1
IsOutputInCodeGeneration:1
Declaration mangled name: L1R
```

bool p_explicit_interface: 0
bool p_explicit_enum: 0
bool p_explicit_anonymous: 0
SgExprListExp* p_decoratorList: 0
int p_name_qualification_length: 0
bool p_type_elaboration_required: 0
bool p_global_qualification_required: 0
bool p_isAutonomousDeclaration: 1

bool p_isRepresentingTemplateParameterInTemplateDeclaration: 0

```
SgNode* p_parent: 0x7f7d26d3e130
bool p isModified: 1
bool p_containsTransformation: 0
Sg_File_Info* p_startOfConstruct : 0x7f7d3288bac0
Sg_File_Info* p_endOfConstruct : 0x7f7d3288bb30
AttachedPreprocessingInfoType* p attachedPreprocessingInfoPtr: 0
AstAttributeMechanism* p_attributeMechanism: 0
bool p containsTransformationToSurroundingWhitespace: 0
SgLabelRefExp* p_numeric_label: 0
int p_source_sequence_value: 6
unsigned int p_decl_attributes: 0
std::string p_linkage:
SqDeclarationModifier p_declarationModifier : <too long>: <too long>: SqDeclarationModifier(isUnknown() = false isDefault() = true isFrien
bool p_nameOnly: 0
bool p_forward: 0
bool p_externBrace: 0
bool p_skipElaborateType: 0
SgDeclarationStatement* p_definingDeclaration: 0x7f7d262e1a78
SgDeclarationStatement* p_firstNondefiningDeclaration: 0x7f7d262e1700
SgQualifiedNamePtrList p_qualifiedNameList : []
std::string p binding label:
SgDeclarationScope* p_declarationScope : 0
SgName p_name : Derived_Record
SgClassDeclaration::class_types p_class_type: 1
SgClassType* p_type: 0x7f7d262a2090
SgClassDefinition* p_definition: 0x7f7d26747148
SgScopeStatement* p_scope : 0x7f7d26d3e130
SgDeclarationStatement::template_specialization_enum p_specialization: 1
bool p from template: 0
bool p_fixupScope: 0
bool p_isUnNamed: 0
bool p_explicit_annotation_interface: 0
```

pointer:0x7f7d26747148 SgClassDefinition transformation 0:0 IsTransformation:1 IsOutputInCodeGeneration:1

bool p_isAbstract: 0

```
SgNode* p_parent: 0x7f7d262e1a78
bool p isModified: 1
bool p_containsTransformation: 0
Sg File Info* p startOfConstruct: 0x7f7d3288b270
Sg_File_Info* p_endOfConstruct : 0x7f7d3288b2e0
AttachedPreprocessingInfoType* p_attachedPreprocessingInfoPtr: 0
AstAttributeMechanism* p_attributeMechanism: 0
bool p_containsTransformationToSurroundingWhitespace: 0
SgLabelRefExp* p_numeric_label: 0
int p_source_sequence_value: 7
SgSymbolTable* p_symbol_table: 0x7f7d327ab7a0
SgTypeTable* p_type_table : 0x26c6bd0
std::set<SgSymbol*> p_type_elaboration_list : []
std::set<SgSymbol*> p_hidden_type_list : []
std::set<SgSymbol*> p_hidden_declaration_list : []
SgPragma* p_pragma: 0
SgDeclarationStatementPtrList p_members : [0x7f7d26493390]
SgBaseClassPtrList p_inheritances : [0x27f5e80]
unsigned int p packingAlignment: 0
bool p_isSequence: 0
bool p_isPrivate: 0
```

```
Declaration mangled name: L1R_variable_declaration_variable_type_i_variable_name_L1R_scope_Component_2
  Click here to go to the parent node
SqNode* p parent : 0x7f7d26747148
bool p isModified: 1
bool p_containsTransformation: 0
Sg_File_Info* p_startOfConstruct : 0x7f7d3288b900
Sg_File_Info* p_endOfConstruct : 0x7f7d3288b970
AttachedPreprocessingInfoType* p attachedPreprocessingInfoPtr: 0
AstAttributeMechanism* p_attributeMechanism: 0
bool p containsTransformationToSurroundingWhitespace: 0
SgLabelRefExp* p_numeric_label: 0
int p_source_sequence_value: 8
unsigned int p decl attributes: 0
std::string p_linkage:
SqDeclarationModifier p_declarationModifier : <too long>: <too long>: SqDeclarationModifier(isUnknown() = false isDefault() = true isFrien
bool p_nameOnly: 0
bool p_forward: 0
bool p externBrace: 0
bool p_skipElaborateType: 0
SgDeclarationStatement* p definingDeclaration: 0
SgDeclarationStatement* p_firstNondefiningDeclaration: 0x7f7d26493390
SgQualifiedNamePtrList p qualifiedNameList: []
std::string p binding label:
SgDeclarationScope* p_declarationScope: 0
SgDeclarationStatement* p_baseTypeDefiningDeclaration: 0
SgInitializedNamePtrList p_variables : [0x7f7d26649218]
bool p_variableDeclarationContainsBaseTypeDefiningDeclaration: 0
SqDeclarationStatement::template specialization enum p specialization: 1
bool p_requiresGlobalNameQualificationOnType: 0
std::string p_gnu_extension_section :
std::string p_gnu_extension_alias :
unsigned short p_gnu_extension_initialization_priority: 0
SgDeclarationStatement::gnu_extension_visability_attribute_enum p_gnu_extension_visability: 1
SgVariableDeclaration::gnu_extension_declaration_attributes_enum p_gnu_extension_declaration_attribute: 1
int p_name_qualification_length: 0
bool p_type_elaboration_required: 0
bool p_global_qualification_required: 0
bool p_isAssociatedWithDeclarationList: 0
bool p isFirstDeclarationOfDeclarationList: 1
bool p_is_thread_local: 0
bool p_is_constexpr: 0
```

pointer:0x7f7d26493390 SgVariableDeclaration transformation 0:0 IsTransformation:1

IsOutputInCodeGeneration:1

bool p builtFromUseOnly: 0

```
pointer:0x7f7d26649218
SgInitializedName
transformation 0:0
IsTransformation:1
IsOutputInCodeGeneration:1
```

```
SgNode* p parent : 0x7f7d26493390
bool p isModified: 0
bool p containsTransformation: 0
Sg File Info* p startOfConstruct: 0x7f7d3288b5f0
Sg_File_Info* p_endOfConstruct : 0x7f7d3288b660
AttachedPreprocessingInfoType* p_attachedPreprocessingInfoPtr : 0
AstAttributeMechanism* p attributeMechanism: 0
bool p containsTransformationToSurroundingWhitespace: 0
SqName p name: Component 2
std::string p_microsoft_uuid_string:
SgType* p_typeptr : 0x7f7d26d03010
SgInitializer* p initptr: 0
SgInitializedName* p_prev_decl_item: 0
bool p is initializer: 1
SqDeclarationStatement* p_declptr: 0
SgStorageModifier* p_storageModifier: 0x27b37f8
SgScopeStatement* p_scope : 0x7f7d26747148
SgInitializedName::preinitialization_enum p_preinitialization: 0
bool p isCoArray: 0
SqInitializedName::asm register name enum p register name code: 0
SgInitializedName::excess specifier enum p excess specifier: 0
std::string p register name string:
bool p_requiresGlobalNameQualificationOnType: 0
bool p shapeDeferred: 0
bool p initializationDeferred: 0
unsigned long int p_gnu_attribute_initialization_priority: 0
std::string p gnu attribute named weak reference:
std::string p gnu attribute named alias:
std::string p_gnu_attribute_cleanup_function:
std::string p_gnu_attribute_section_name :
int p_gnu_attribute_alignment : -1
SqDeclarationModifier::gnu declaration visability enum p gnu attribute visability: 0
bool p_protected_declaration: 0
int p_name_qualification_length: 0
bool p_type_elaboration_required: 0
bool p_global_qualification_required: 0
int p name qualification length for type: 0
bool p_type_elaboration_required_for_type: 0
bool p_global_qualification_required_for_type: 0
bool p hasArrayTypeWithEmptyBracketSyntax: 0
bool p_using_C11_Alignas_keyword: 0
SqNode* p constant or type argument for Alignas keyword: 0
bool p_using_auto_keyword: 0
SgType * p_auto_decltype : 0
bool p_using_device_keyword: 0
bool p_is_braced_initialized: 0
bool p using assignment copy constructor syntax: 0
bool p needs definitions: 0
bool p is parameter pack: 0
bool p is pack element: 0
```