

```
-- file Pass4.Mesa
-- last modified by Satterthwaite, April 19, 1978 11:22 AM
```

#### DIRECTORY

```
ComData: FROM "comdata",
CompilerDefs: FROM "compilerdefs",
P4Defs: FROM "p4defs",
SymDefs: FROM "symdefs",
TableDefs: FROM "tabledefs",
TreeDefs: FROM "treedefs";
```

#### Pass4: PROGRAM

```
IMPORTS
    CompilerDefs, TableDefs, TreeDefs, P4Defs,
    dataPtr: ComData
EXPORTS CompilerDefs =
PUBLIC
BEGIN
    OPEN TreeDefs, SymDefs;

    tb: TableDefs.TableBase;      -- tree base address (local copy)
    seb: TableDefs.TableBase;     -- se table base (local copy)
    ctxb: TableDefs.TableBase;    -- context table base (local copy)

    tTRUE: TreeLink;
    tFALSE: TreeLink;
```

```
P4Notify: TableDefs.TableNotifier =
    BEGIN -- called by allocator whenever table area is repacked
        tb ← base[treetype];
        P4Defs.BCDNotify[base]; P4Defs.DeclNotify[base];
        P4Defs.LayoutNotify[base];
        P4Defs.StmtNotify[base];
        P4Defs.ExpANotify[base]; P4Defs.ExpBNotify[base]; RETURN
    END;
```

#### -- intermediate result bookkeeping

```
returnRecord, resumeRecord: recordCSEIndex;

implicitType: CSEIndex;          -- assumed type of empty
implicitBias: INTEGER;          -- assumed bias of empty
implicitRep: P4Defs.Repr;       -- assumed representation of empty

lockNode: TreeIndex;
```

#### -- overall control

```
P4Unit: PROCEDURE [unit: TreeLink] =
    BEGIN
        node: TreeIndex;
        TableDefs.AddNotify[P4Notify];
        tTRUE ← dataPtr.tC1; tFALSE ← dataPtr.tC0;
        P4Defs.Pass4XInit[]; P4Defs.InitBCD[];
        node ← GetNode[unit];
        (tb+node).son3 ← updateList[(tb+node).son3, Module];
        freenode[node];
        P4Defs.FinishBCD[];
        TableDefs.DropNotify[P4Notify]; RETURN
    END;
```

```
Module: PRIVATE PROCEDURE [module: TreeLink] RETURNS [TreeLink] =
    BEGIN
        node: TreeIndex = GetNode[module];
        saveIndex: CARDINAL = dataPtr.textIndex;
        implicitType ← typeANY; implicitBias ← 0; implicitRep ← P4Defs.none;
        resumeRecord ← recordCSENull;
        dataPtr.textIndex ← (tb+node).info;
        lockNode ← IF ~dataPtr.monitored
            THEN nullTreeIndex
            ELSE GetNode[(tb+node).son4];
        P4Defs.AssignEntries[dataPtr.mainBody];
        P4Defs.AssignImports[(tb+node).son1];
        scanlist[(tb+node).son5, P4Defs.DeclItem];
```

```
P4Defs.BodyList[dataPtr.bodyRoot];
(tb+node).son5 ← updatelist[(tb+node).son5, P4Defs.DeclUpdate];
P4Defs.ProcessImports[(tb+node).son1];
(tb+node).son2 ← P4Defs.ProcessExports[(tb+node).son2];
freenode[node];
dataPtr.textIndex ← saveIndex; RETURN [empty]
END;
```

```
-- initialization code
```

```
CompilerDefs.MakeSwappable[P4Defs.Pass4B, pass4];
CompilerDefs.MakeSwappable[P4Defs.Pass4D, pass4];
CompilerDefs.MakeSwappable[P4Defs.Pass4L, pass4];
CompilerDefs.MakeSwappable[P4Defs.Pass4S, pass4];
CompilerDefs.MakeSwappable[P4Defs.Pass4Xa, pass4];
CompilerDefs.MakeSwappable[P4Defs.Pass4Xb, pass4];
```

```
END.
```