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-- file DIDefs.Mesa
-- last modified by Barbara, June 30, 1978 12:07 PM

DIRECTORY
  AltoDefs: FROM "altodefs" USING [wordlength],
  DebuggerDefs: FROM "debuggerdefs" USING [LA, SA],
  DILALRDefs: FROM "dilalrdefs" USING [
    ActionEntry, LALRTableHandle, ProductionInfo, SymbolRecord],
  SymbolTableDefs: FROM "symboltabledefs" USING [SymbolTableBase],
  SymDefs: FROM "symdefs" USING [ISEIndex, SEIndex];

DIDefs: DEFINITIONS SHARES DILALRDefs =

  BEGIN OPEN DILALRDefs;

  ParseHandle: TYPE = POINTER TO ParseObject;

  ParseObject: TYPE = RECORD [
    qp: QueueProcessor,
    da: DescriptorAssigner];

  QueueProcessor: TYPE = PROCEDURE [qI, top: CARDINAL,
    proc: PROCEDURE [esp: ESPointer], locals: BOOLEAN];

  DescriptorAssigner: TYPE = PROCEDURE [
    qd: DESCRIPTOR FOR ARRAY OF ActionEntry,
    vd: DESCRIPTOR FOR ARRAY OF UNSPECIFIED,
    hd: DESCRIPTOR FOR ARRAY OF ConstOrQual,
    ld: DESCRIPTOR FOR ARRAY OF CARDINAL,
    pd: DESCRIPTOR FOR ARRAY OF ProductionInfo];

  ConstOrQual: TYPE = {num, lnum, char, sr, var, dot, deref, loophole,
    loopholeType, explist, interval};

  -- Routines implemented by DIParser

  InputLoc: PROCEDURE RETURNS [CARDINAL];
  Parse: PROCEDURE [string: STRING, table: LALRTableHandle, ph: ParseHandle,
    proc: PROCEDURE [esp: ESPointer], locals: BOOLEAN]
    RETURNS [complete: BOOLEAN];
  ParseError: SIGNAL [errorLoc: CARDINAL];
  SyntaxError: SIGNAL [errorLoc: CARDINAL];

  -- Routines implemented by DIScanner

  Atom: PROCEDURE RETURNS [symbol: SymbolRecord];
  ScanInit: PROCEDURE [string: STRING, tablePtr: LALRTableHandle];
  ScanReset: PROCEDURE RETURNS [BOOLEAN];
  InvalidCharacter: SIGNAL [index: CARDINAL];
  InvalidNumber: SIGNAL [index: CARDINAL];

  -- Routines implemented by DIInterpreter

  TwoParse: PROCEDURE RETURNS [ParseHandle];

  --common data structures

  MaxIndirections: CARDINAL = 7;

  EvalStackItem: TYPE = RECORD [
    next: ESPointer,
    stbase: SymbolTableDefs.SymbolTableBase,
    sei: SymDefs.ISEIndex,
    tsei: SymDefs.SEIndex,
    desc: BOOLEAN,
    intN: BOOLEAN,
    indirection: [0..MaxIndirections],
    body: SELECT tag: * FROM
      there => [
        bitsize: CARDINAL,
        bitoffset: [0..AltoDefs.wordlength],
        addr: SELECT tag: * FROM
          short => [shortAddr: DebuggerDefs.SA],
          long => [longAddr: DebuggerDefs.LA],
        ENDCASE],
    here => [

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wordlength: CARDINAL,
data: SELECT OVERLAID * FROM
  mw => [ptr: POINTER],
  sw => [value: UNSPECIFIED],
  ENDCASE],
ENDCASE];

ESPointer: TYPE = POINTER TO EvalStackItem;
hereESPointer: TYPE = POINTER TO here EvalStackItem;
thereESPointer: TYPE = POINTER TO there EvalStackItem;

TypeItem: TYPE = RECORD [
  next: TIPointer,
  stbase: SymbolTableDefs.SymbolTableBase,
  tsei: SymDefs.SEIndex,
  indirection: [0..MaxIndirections]];

TIPointer: TYPE = POINTER TO TypeItem;

predefinedType: TYPE = {integer, cardinal, character, boolean,
  string, unspecified, longinteger};

Operator: TYPE = {null, plus, minus, times, div, mod, size};

END...
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