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-- AllocDefs.mesa
-- Last Edited by:
--                    Sandman on March 22, 1978   11:33 AM

DIRECTORY
  AltoDefs: FROM "altodefs",
  SegmentDefs: FROM "segmentdefs";

AllocDefs: DEFINITIONS =

  BEGIN

  PageNumber: TYPE = AltoDefs.PageNumber;
  PageCount: TYPE = AltoDefs.PageCount;
  SegmentHandle: TYPE = SegmentDefs.SegmentHandle;

  AllocObject: TYPE = RECORD [
    avail: PROCEDURE [page: PageNumber, info: AllocInfo] RETURNS [BOOLEAN],
    status: PROCEDURE [page: PageNumber]
      RETURNS [seg: SegmentHandle, status: PageState],
    update: PROCEDURE [base: PageNumber, pages: PageCount,
      status: PageState, seg: SegmentHandle],
    alloc: PROCEDURE [base: PageNumber, pages: PageCount,
      seg: SegmentHandle, info: AllocInfo]
      RETURNS [PageNumber]];

  AllocHandle: TYPE = POINTER TO AllocObject;

  PageState: TYPE = {free, busy, inuse};

  AllocInfo: TYPE = RECORD [
    unused: [0..777B],
    effort: {hard, easy},
    direction: {topdown, bottomup},
    request: {initial, retry},
    class: {frame, code, table, other},
    swapunlocked: BOOLEAN,
    compact: BOOLEAN];

  SetAllocationObject: PROCEDURE [new: AllocHandle]
    RETURNS [old: AllocHandle];
  GetAllocationObject: PROCEDURE RETURNS [old: AllocHandle];

  -- Lower Level Segments Allocation

  MakeDataSegment: PROCEDURE [
    base: PageNumber, pages: PageCount, info: AllocInfo]
    RETURNS [seg: SegmentDefs.DataSegmentHandle];

  DefaultDataSegmentInfo: AllocInfo =
    AllocInfo[0, easy, topdown, initial, other, FALSE, FALSE];
  DefaultFrameSegmentInfo: AllocInfo =
    AllocInfo[0, hard, topdown, initial, frame, TRUE, FALSE];
  DefaultTableSegmentInfo: AllocInfo =
    AllocInfo[0, hard, topdown, initial, table, TRUE, FALSE];

  MakeSwappedIn: PROCEDURE [
    seg: SegmentDefs.FileSegmentHandle, base: PageNumber, info: AllocInfo];

  DefaultFileSegmentInfo: AllocInfo =
    AllocInfo[0, easy, bottomup, initial, other, FALSE, FALSE];

  -- Swap Strategies and Swapping Procedures:

  SwappingProcedure: TYPE =
    PROCEDURE [needed: PageCount, info: AllocInfo, seg: SegmentHandle]
    RETURNS [BOOLEAN];

  TryCodeSwapping, CantSwap: SwappingProcedure;
  SwapStrategy: TYPE = RECORD [
    link: POINTER TO SwapStrategy,
    proc: SwappingProcedure];

  AddSwapStrategy: PROCEDURE [strategy: POINTER TO SwapStrategy];
  RemoveSwapStrategy: PROCEDURE [strategy: POINTER TO SwapStrategy];
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END..