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entry:
%br_state = alloca %struct.bitread_working_state, align 16
%state = alloca %struct.savable_state, align 4
%entropy1 = getelementptr inbounds %struct.jpeg_decompress_struct,
... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 79
%0 = bitcast %struct.jpeg_entropy_decoder** %entropy1 to
... %struct.phuff_entropy_decoder**
%1 = load %struct.phuff_entropy_decoder*, %struct.phuff_entropy_decoder**
... %0, align 8, !tbaa 12
%A12 = getelementptr inbounds %struct.jpeg_decompress_struct,
... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 71
%2 = bitcast i32* %A12 to i64*
%3 = load i64, i64*, %2, align 8
%4 = trunc i64 %3 to i32
%3 = bitcast %struct.bitread_working_state* %br_state to i8*
call void @llvm.lifetime.start(i64 56, i8* %5) #3
call void @llvm.lifetime.start(i64 20, i8* %6) #3
%restart_interval = getelementptr inbounds %struct.jpeg_decompress_struct,
... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 49
%7 = load i32, i32* %restart_interval, align 8, !tbaa 110
%tobool = icmp eq i32 %7, 0
%8 = lshr i64 %3, 32
%9 = trunc i64 %8 to i32
br i1 %tobool, label %if.end7, label %if.then

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if.then:
%restarts_to_go = getelementptr inbounds %struct.phuff_entropy_decoder,
... %struct.phuff_entropy_decoder* %1, i64 0, i32 3
%10 = load i32, i32* %restarts_to_go, align 4, !tbaa 111
%cmp = icmp eq i32 %10, 0
br i1 %cmp, label %if.then3, label %if.end7

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if.then3:
%bits_left.i = getelementptr inbounds %struct.phuff_entropy_decoder,
... %struct.phuff_entropy_decoder* %1, i64 0, i32 1, i32 1
%11 = load i32, i32* %bits_left.i, align 8, !tbaa 117
%div.i = sdiv i32 %11, 8
%marker.i = getelementptr inbounds %struct.jpeg_decompress_struct,
... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 78
%12 = load %struct.jpeg_marker_reader*, %struct.jpeg_marker_reader**
%discarded_bytes.i = getelementptr inbounds %struct.jpeg_marker_reader,
... %struct.jpeg_marker_reader* %12, i64 0, i32 8
%13 = load i32, i32* %discarded_bytes.i, align 4, !tbaa 119
%add.i = add i32 %13, %div.i
store i32 %add.i, i32* %discarded_bytes.i, align 4, !tbaa 119
store i32 0, i32* %bits_left.i, align 8, !tbaa 117
%read_restart_marker.i = getelementptr inbounds %struct.jpeg_marker_reader,
... %struct.jpeg_marker_reader* %12, i64 0, i32 2
%14 = load i32 (%struct.jpeg_decompress_struct*)*, i32
... (%struct.jpeg_decompress_struct*)* %read_restart_marker.i, align 8, !tbaa 121
%call.i = tail call i32 @%struct.jpeg_decompress_struct@nonnull %cinfo
... #3
%tobool.i = icmp eq i32 %call.i, 0
br i1 %tobool.i, label %cleanup102, label %for.cond.preheader.i

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for.cond.preheader.i:
%comps_in_scan.i = getelementptr inbounds %struct.jpeg_decompress_struct,
... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 62
%15 = load i32, i32* %comps_in_scan.i, align 8, !tbaa 122
%cmp22.i = icmp sgt i32 %15, 0
br i1 %cmp22.i, label %for.body.i.preheader, label %process_restart.exit

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for.body.i.preheader:
br label %for.body.i

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for.body.i:
%indvars.iv = phi i64 [ %indvars.iv.next.i, %for.body.i ], [ 0,
... %for.body.i.preheader ]
%arrayidx.i = getelementptr inbounds %struct.phuff_entropy_decoder,
... %struct.phuff_entropy_decoder* %1, i64 0, i32 2, i32 1, i64 %indvars.iv
store i32 0, i32* %arrayidx.i, align 4, !tbaa 123
%indvars.iv.next.i = add nuw nsw i64 %indvars.iv.i, 1
%16 = load i32, i32* %comps_in_scan.i, align 8, !tbaa 122
%17 = sext i32 %16 to i64
%cmp.i = icmp slt i64 %indvars.iv.next.i, %17
br i1 %cmp.i, label %for.body.i, label %process_restart.exit.loopexit

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process_restart.exit.loopexit:
br label %process_restart.exit

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process_restart.exit:
%EOBRUN.i = getelementptr inbounds %struct.phuff_entropy_decoder,
... %struct.phuff_entropy_decoder* %1, i64 0, i32 2, i32 0
store i32 0, i32* %EOBRUN.i, align 8, !tbaa 124
%18 = load i32, i32* %restart_interval, align 8, !tbaa 110
store i32 %18, i32* %restarts_to_go, align 4, !tbaa 111
%printed_cod.i = getelementptr inbounds %struct.phuff_entropy_decoder,
... %struct.phuff_entropy_decoder* %1, i64 0, i32 1, i32 2
store i32 0, i32* %printed_cod.i, align 4, !tbaa 125
%unread_marker.ph.trans.insert = getelementptr inbounds
... %struct.jpeg_decompress_struct, %struct.jpeg_decompress_struct* %cinfo, i64
... 0, i32 72
%pre = load i32, i32* %unread_marker.ph.trans.insert, align 4, !tbaa 126
br label %if.end7

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if.end7:
%19 = phi i32 [ %pre, %process_restart.exit ], [ 0, %entry ], [ %9,
... %if.then ]
%cinf08 = getelementptr inbounds %struct.bitread_working_state,
... %struct.bitread_working_state* %br_state, i64 0, i32 5
store %struct.jpeg_decompress_struct* %cinfo,
... %struct.jpeg_decompress_struct** %cinf08, align 8, !tbaa 127
%src = getelementptr inbounds %struct.jpeg_decompress_struct,
... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 5
%20 = bitcast %struct.jpeg_source_mgr** %src to i64**
%21 = load i64*, i64** %20, align 8, !tbaa 129
%22 = bitcast i64* %21 to <2 x i64*>
%23 = load <2 x i64*>, <2 x i64*> %22, align 8, !tbaa 130
%24 = bitcast %struct.bitread_working_state* %br_state to <2 x i64*>
store <2 x i64*> %23, <2 x i64*> %24, align 16, !tbaa 130
%unread_marker = getelementptr inbounds %struct.jpeg_decompress_struct,
... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 72
%unread_marker12 = getelementptr inbounds %struct.bitread_working_state,
... %struct.bitread_working_state* %br_state, i64 0, i32 2
store i32 %19, i32* %unread_marker12, align 16, !tbaa 131
%get_buffer13 = getelementptr inbounds %struct.phuff_entropy_decoder,
... %struct.phuff_entropy_decoder* %1, i64 0, i32 1, i32 0
%25 = load i64, i64* %get_buffer13, align 8, !tbaa 132
%bits_left15 = getelementptr inbounds %struct.phuff_entropy_decoder,
... %struct.phuff_entropy_decoder* %1, i64 0, i32 1, i32 1
%26 = load i32, i32* %bits_left15, align 8, !tbaa 117
%printed_cod = getelementptr inbounds %struct.phuff_entropy_decoder,
... %struct.phuff_entropy_decoder* %1, i64 0, i32 1, i32 2
%printed_cod_ptr = getelementptr inbounds %struct.bitread_working_state,
... %struct.bitread_working_state* %br_state, i64 0, i32 6
store i32* %printed_cod, i32** %printed_cod_ptr, align 16, !tbaa 133
%saved = getelementptr inbounds %struct.phuff_entropy_decoder,
... %struct.phuff_entropy_decoder* %1, i64 0, i32 2
%27 = bitcast %struct.savable_state* %saved to i8*
call void @llvm.memcpy.p0i8.p0i8.i64(i8* %6, i8* %27, i64 20, i32 4, !i
... false), !tbaa.struct 134
%blocks_in_MCU = getelementptr inbounds %struct.jpeg_decompress_struct,
... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 66
%28 = load i32, i32* %blocks_in_MCU, align 8, !tbaa 135
%cmp17191 = icmp sgt i32 %28, 0
br i1 %cmp17191, label %for.body.lr.ph, label %for.end

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for.body.lr.ph:
%get_buffer30 = getelementptr inbounds %struct.bitread_working_state,
... %struct.bitread_working_state* %br_state, i64 0, i32 3
%bits_left31 = getelementptr inbounds %struct.bitread_working_state,
... %struct.bitread_working_state* %br_state, i64 0, i32 4
br label %for.body

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for.body:
%indvars.iv = phi i64 [ 0, %for.body.lr.ph ], [ %indvars.iv.next, %if.end78 ]
%bits_left.0193 = phi i32 [ %26, %for.body.lr.ph ], [ %bits_left.6,
... %if.end78 ]
%get_buffer.0192 = phi i64 [ %25, %for.body.lr.ph ], [ %get_buffer.6,
... %if.end78 ]
%arrayidx = getelementptr inbounds [64 x i16]*, [64 x i16]** %MCU_data, i64
... %indvars.iv
%29 = load [64 x i16]*, [64 x i16]** %arrayidx, align 8, !tbaa 136
%arrayidx19 = getelementptr inbounds %struct.jpeg_decompress_struct,
... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 67, i64 %indvars.iv
%30 = load i32, i32* %arrayidx19, align 4, !tbaa 123
%idxprom20 = sext i32 %30 to i64
%arrayidx21 = getelementptr inbounds %struct.jpeg_decompress_struct,
... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 63, i64 %idxprom20
%31 = load %struct.jpeg_component_info*, %struct.jpeg_component_info**
... %arrayidx21, align 8, !tbaa 136
%dc_tbl_no = getelementptr inbounds %struct.jpeg_component_info,
... %struct.jpeg_component_info* %31, i64 0, i32 5
%32 = load i32, i32* %dc_tbl_no, align 4, !tbaa 137
%idxprom22 = sext i32 %32 to i64
%arrayidx23 = getelementptr inbounds %struct.phuff_entropy_decoder,
... %struct.phuff_entropy_decoder* %1, i64 0, i32 4, i64 %idxprom22
%33 = load %struct.d_derived_tbl*, %struct.d_derived_tbl** %arrayidx23,
... align 8, !tbaa 136
%cmp24 = icmp slt i32 %bits_left.0193, 8
br i1 %cmp24, label %if.then25, label %if.end35

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```

if.then25:
%call26 = call i32 @jpeg_fill_bit_buffer(%struct.bitread_working_state*
... %nonnull %br_state, i64 %get_buffer.0192, i32 %bits_left.0193, i32 0) #3
%tobool27 = icmp eq i32 %call26, 0
br i1 %tobool27, label %cleanup102.loopexit, label %if.end29

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if.end29:
%34 = load i64, i64* %get_buffer30, align 8, !tbaa 139
%35 = load i32, i32* %bits_left31, align 16, !tbaa 140
%cmp32 = icmp slt i32 %35, 8
br i1 %cmp32, label %label1, label %if.end35

```

```

if.end35:
%get_buffer.1 = phi i64 [ %34, %if.end29 ], [ %get_buffer.0192, %for.body ]
%bits_left.1 = phi i32 [ %35, %if.end29 ], [ %bits_left.0193, %for.body ]
%sub = add nsw i32 %bits_left.1, -8
%sh_prom = zext i32 %sub to i64
%shr = ashr i64 %get_buffer.1, %sh_prom
%and = and i64 %shr, 255
%arrayidx37 = getelementptr inbounds %struct.d_derived_tbl,
... %struct.d_derived_tbl* %33, i64 0, i32 4, i64 %and
%36 = load i32, i32* %arrayidx37, align 4, !tbaa 123
%cmp38 = icmp eq i32 %36, 0
br i1 %cmp38, label %label1, label %if.then40

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```

label1:
%get_buffer.2 = phi i64 [ %34, %if.end29 ], [ %get_buffer.1, %if.end35 ]
%bits_left.2 = phi i32 [ %35, %if.end29 ], [ %bits_left.1, %if.end35 ]
%nb.0 = phi i32 [ 1, %if.end29 ], [ 9, %if.end35 ]
%call45 = call i32 @jpeg_huff_decoder(%struct.bitread_working_state* %nonnull
... %br_state, i64 %get_buffer.2, i32 %bits_left.2, %struct.d_derived_tbl* %33,
... i32 %nb.0) #3
%cmp46 = icmp slt i32 %call45, 0
br i1 %cmp46, label %cleanup102.loopexit, label %if.end49

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```

if.end49:
%38 = load i64, i64* %get_buffer30, align 8, !tbaa 139
%39 = load i32, i32* %bits_left31, align 16, !tbaa 140
br label %cleanup.cont

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if.then40:
%sub41 = sub nsw i32 %bits_left.1, %36
%arrayidx43 = getelementptr inbounds %struct.d_derived_tbl,
... %struct.d_derived_tbl* %33, i64 0, i32 5, i64 %and
%37 = load i8, i8* %arrayidx43, align 1, !tbaa 130
%conv44 = zext i8 %37 to i32
br label %cleanup.cont

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cleanup.cont:
%get_buffer.4.ph = phi i64 [ %get_buffer.1, %if.end49 ], [ %38, %if.end49 ]
%bits_left.4.ph = phi i32 [ %sub41, %if.then40 ], [ %39, %if.end49 ]
%3.2.ph = phi i32 [ %conv44, %if.then40 ], [ %call45, %if.end49 ]
%tobool54 = icmp eq i32 %3.2.ph, 0
br i1 %tobool54, label %if.end78, label %if.then55

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if.then55:
%cmp56 = icmp slt i32 %bits_left.4.ph, %3.2.ph
br i1 %cmp56, label %if.then58, label %if.end65

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if.then58:
%call59 = call i32 @jpeg_fill_bit_buffer(%struct.bitread_working_state*
... %nonnull %br_state, i64 %get_buffer.4.ph, i32 %bits_left.4.ph, i32 %3.2.ph) #3
%tobool60 = icmp eq i32 %call59, 0
br i1 %tobool60, label %cleanup102.loopexit, label %if.end62

```

```

if.end62:
%40 = load i64, i64* %get_buffer30, align 8, !tbaa 139
%41 = load i32, i32* %bits_left31, align 16, !tbaa 140
br label %if.end65

```

```

if.end65:
%get_buffer.5 = phi i64 [ %40, %if.end62 ], [ %get_buffer.4.ph, %if.then55 ]
%bits_left.5 = phi i32 [ %41, %if.end62 ], [ %bits_left.4.ph, %if.then55 ]
%sub66 = sub nsw i32 %bits_left.5, %3.2.ph
%sh_prom67 = zext i32 %sub66 to i64
%shr68 = ashr i64 %get_buffer.5, %sh_prom67
%conv69 = trunc i64 %shr68 to i32
%sh1 = shl i32 1, %2.ph
%sub70 = add nsw i32 %sh1, -1
%and71 = and i32 %conv69, %sub70
%idxprom72 = sext i32 %3.2.ph to i64
%arrayidx73 = getelementptr inbounds [16 x i32], [16 x i32]** @extend_test,
... i64 0, i64 %idxprom72
%42 = load i32, i32* %arrayidx73, align 4, !tbaa 123
%cmp74 = icmp slt i32 %and71, %42
br i1 %cmp74, label %cond.true, label %if.end78

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cond.true:
%arrayidx77 = getelementptr inbounds [16 x i32], [16 x i32]** @extend_offset,
... i64 0, i64 %idxprom72
%43 = load i32, i32* %arrayidx77, align 4, !tbaa 123
%add = add nsw i32 %43, %and71
br label %if.end78

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```

if.end78:
%get_buffer.6 = phi i64 [ %get_buffer.4.ph, %cleanup.cont ], [
... %get_buffer.5, %if.end65 ], [ %get_buffer.5, %cond.true ]
%bits_left.6 = phi i32 [ %bits_left.4.ph, %cleanup.cont ], [ %sub66,
... %if.end65 ], [ %sub66, %cond.true ]
%3 = phi i32 [ 0, %cleanup.cont ], [ %and71, %if.end65 ], [ %add,
... %cond.true ]
%struct.savable_state = getelementptr inbounds %struct.savable_state,
... %struct.savable_state* %state, i64 0, i32 1, i64 %idxprom20
%44 = load i32, i32* %arrayidx80, align 4, !tbaa 123
%add81 = add nsw i32 %44, %3
store i32 %add81, i32* %arrayidx80, align 4, !tbaa 123
%shl85 = shl i32 %add81, %4
%conv86 = trunc i32 %shl85 to i16
%arrayidx87 = getelementptr inbounds [64 x i16], [64 x i16]** %29, i64 0, i64
... 0
store i16 %conv86, i16* %arrayidx87, align 2, !tbaa 141
%indvars.iv.next = add nuw nsw i64 %indvars.iv, 1
%45 = load i32, i32* %blocks_in_MCU, align 8, !tbaa 135
%46 = sext i32 %45 to i64
%cmp17 = icmp slt i64 %indvars.iv.next, %46
br i1 %cmp17, label %for.body, label %for.end.loopexit

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for.end.loopexit:
%bits_left.6.lesssa = phi i32 [ %bits_left.6, %if.end78 ],
... %get_buffer.6.lesssa = phi i64 [ %get_buffer.6, %if.end78 ]
%pre197 = load i64*, i64** %20, align 8, !tbaa 129
%47 = bitcast %struct.bitread_working_state* %br_state to <2 x i64*>
%48 = load <2 x i64*>, <2 x i64*> %47, align 16, !tbaa 130
%pre199 = load i32, i32* %unread_marker12, align 16, !tbaa 131
br label %for.end

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```

for.end:
%49 = phi i32 [ %19, %if.end7 ], [ %pre199, %for.end.loopexit ]
%in = phi i64* [ %21, %if.end7 ], [ %pre197, %for.end.loopexit ]
%bits_left.0.lesssa = phi i32 [ %26, %if.end7 ], [ %bits_left.6.lesssa,
... %for.end.loopexit ]
%get_buffer.0.lesssa = phi i64 [ %25, %if.end7 ], [ %get_buffer.6.lesssa,
... %for.end.loopexit ]
%50 = phi <2 x i64*> [ %23, %if.end7 ], [ %48, %for.end.loopexit ]
%51 = bitcast i64* %in to <2 x i64*>
store <2 x i64*> %50, <2 x i64*> %51, align 8, !tbaa 130
store i32 %49, i32* %unread_marker, align 4, !tbaa 126
store i64 %get_buffer.0.lesssa, i64* %get_buffer13, align 8, !tbaa 132
store i32 %bits_left.0.lesssa, i32* %bits_left15, align 8, !tbaa 117
call void @llvm.memcpy.p0i8.p0i8.i64(i8* %27, i8* %nonnull %6, i64 20, i32 4, !i
... !1 false), !tbaa.struct 134
%restarts_to_go101 = getelementptr inbounds %struct.phuff_entropy_decoder,
... %struct.phuff_entropy_decoder* %1, i64 0, i32 3
%52 = load i32, i32* %restarts_to_go101, align 4, !tbaa 111
%dec = add i32 %52, -1
store i32 %dec, i32* %restarts_to_go101, align 4, !tbaa 111
br label %cleanup102

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cleanup102:
%retval.2 = phi i32 [ 1, %for.end ], [ 0, %if.then3 ], [ 0,
... %cleanup102.loopexit ]
call void @llvm.lifetime.end(i64 20, i8* %6) #3
call void @llvm.lifetime.end(i64 56, i8* %5) #3
ret i32 %retval.2

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