

```
entry:
  %mem = getelementptr inbounds %struct.jpeg_decompress_struct,
  ... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 1
  %0 = load %struct.jpeg_memory_mgr*, %struct.jpeg_memory_mgr** %mem, align 8,
  ... !tbaa !2
  %alloc_small = getelementptr inbounds %struct.jpeg_memory_mgr,
  ... %struct.jpeg_memory_mgr* %0, i64 0, i32 0
  %1 = load i8* (%struct.jpeg_common_struct*, i32, i64)*, i8*
  ... (%struct.jpeg_common_struct*, i32, i64)** %alloc_small, align 8, !tbaa !10
  %2 = bitcast %struct.jpeg_decompress_struct* %cinfo to
  ... %struct.jpeg_common_struct*
  %call = tail call i8* %1(%struct.jpeg_common_struct* %2, i32 1, i64 224) #5
  %coef1 = getelementptr inbounds %struct.jpeg_decompress_struct,
  ... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 75
  %3 = bitcast %struct.jpeg_d_coef_controller** %coef1 to i8**
  store i8* %call, i8** %3, align 8, !tbaa !13
  %start_input_pass = bitcast i8* %call to void
  ... (%struct.jpeg_decompress_struct**)
  store void (%struct.jpeg_decompress_struct*)* @start_input_pass, void
  ... (%struct.jpeg_decompress_struct**) %start_input_pass, align 8, !tbaa !14
  %start_output_pass = getelementptr inbounds i8, i8* %call, i64 16
  %4 = bitcast i8* %start_output_pass to void
  ... (%struct.jpeg_decompress_struct**)
  store void (%struct.jpeg_decompress_struct*)* @start_output_pass, void
  ... (%struct.jpeg_decompress_struct**) %4, align 8, !tbaa !17
  %coef_bits_latch = getelementptr inbounds i8, i8* %call, i64 216
  %5 = bitcast i8* %coef_bits_latch to i32**
  store i32* null, i32** %5, align 8, !tbaa !18
  %tobool = icmp eq i32 %need_full_buffer, 0
  br i1 %tobool, label %if.else, label %if.then
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if.then:
  %num_components = getelementptr inbounds %struct.jpeg_decompress_struct,
  ... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 8
  %6 = load i32, i32* %num_components, align 8, !tbaa !19
  %cmp76 = icmp sgt i32 %6, 0
  br i1 %cmp76, label %for.body.lr.ph, label %if.then.for.end_crit_edge
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for.body.lr.ph:
  %comp_info = getelementptr inbounds %struct.jpeg_decompress_struct,
  ... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 43
  %7 = load %struct.jpeg_component_info*, %struct.jpeg_component_info**
  ... %comp_info, align 8, !tbaa !20
  %progressive_mode = getelementptr inbounds %struct.jpeg_decompress_struct,
  ... %struct.jpeg_decompress_struct* %cinfo, i64 0, i32 44
  %whole_image = getelementptr inbounds i8, i8* %call, i64 136
  %8 = bitcast i8* %whole_image to [10 x %struct.jvirt_barray_control]*
  br label %for.body
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for.body:
  %indvars.iv79 = phi i64 [ 0, %for.body.lr.ph ], [ %indvars.iv.next80,
  ... %for.body ]
  %compptr.077 = phi %struct.jpeg_component_info* [ %7, %for.body.lr.ph ], [
  ... %indec.ptr, %for.body ]
  %v_samp_factor = getelementptr inbounds %struct.jpeg_component_info,
  ... %struct.jpeg_component_info* %compptr.077, i64 0, i32 3
  %9 = load i32, i32* %v_samp_factor, align 4, !tbaa !21
  %10 = load i32, i32* %progressive_mode, align 8, !tbaa !23
  %tobool3 = icmp eq i32 %10, 0
  %mul = mul nsw i32 %9, 3
  %.mul = select i1 %tobool3, i32 %9, i32 %mul
  %11 = load %struct.jpeg_memory_mgr*, %struct.jpeg_memory_mgr** %mem, align
  ... 8, !tbaa !2
  %request_virt_barray = getelementptr inbounds %struct.jpeg_memory_mgr,
  ... %struct.jpeg_memory_mgr* %11, i64 0, i32 5
  %12 = load %struct.jvirt_barray_control* (%struct.jpeg_common_struct*, i32,
  ... i32, i32, i32, i32)*, %struct.jvirt_barray_control*
  ... (%struct.jpeg_common_struct*, i32, i32, i32, i32, i32)**
  ... %request_virt_barray, align 8, !tbaa !24
  %width_in_blocks = getelementptr inbounds %struct.jpeg_component_info,
  ... %struct.jpeg_component_info* %compptr.077, i64 0, i32 7
  %13 = load i32, i32* %width_in_blocks, align 4, !tbaa !25
  %conv = zext i32 %13 to i64
  %h_samp_factor = getelementptr inbounds %struct.jpeg_component_info,
  ... %struct.jpeg_component_info* %compptr.077, i64 0, i32 2
  %14 = load i32, i32* %h_samp_factor, align 8, !tbaa !26
  %conv6 = sext i32 %14 to i64
  %call7 = tail call @jround_up(i64 %conv, i64 %conv6) #5
  %conv8 = trunc i64 %call7 to i32
  %height_in_blocks = getelementptr inbounds %struct.jpeg_component_info,
  ... %struct.jpeg_component_info* %compptr.077, i64 0, i32 8
  %15 = load i32, i32* %height_in_blocks, align 8, !tbaa !27
  %conv9 = zext i32 %15 to i64
  %16 = load i32, i32* %v_samp_factor, align 4, !tbaa !21
  %conv11 = sext i32 %16 to i64
  %call12 = tail call @jround_up(i64 %conv9, i64 %conv11) #5
  %conv13 = trunc i64 %call12 to i32
  %call14 = tail call %struct.jvirt_barray_control*
  ... %12(%struct.jpeg_common_struct* nonnull %2, i32 1, i32 1, i32 %conv8, i32
  ... %conv13, i32 %mul) #5
  %arrayidx = getelementptr inbounds [10 x %struct.jvirt_barray_control*], [10
  ... x %struct.jvirt_barray_control*]* %8, i64 0, i64 %indvars.iv79
  store %struct.jvirt_barray_control* %call14, %struct.jvirt_barray_control**
  ... %arrayidx, align 8, !tbaa !28
  %indvars.iv.next80 = add nuw nsw i64 %indvars.iv79, 1
  %indec.ptr = getelementptr inbounds %struct.jpeg_component_info,
  ... %struct.jpeg_component_info* %compptr.077, i64 1
  %17 = load i32, i32* %num_components, align 8, !tbaa !19
  %18 = sext i32 %17 to i64
  %cmp = icmp slt i64 %indvars.iv.next80, %18
  br i1 %cmp, label %for.body, label %for.end.loopexit
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for.end.loopexit:
  br label %for.end
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if.then.for.end_crit_edge:
  %.pre = getelementptr inbounds i8, i8* %call, i64 136
  br label %for.end
```

```
for.end:
  %whole_image17.pre-phi = phi i8* [ %.pre, %if.then.for.end_crit_edge ], [
  ... %whole_image, %for.end.loopexit ]
  %consume_data = getelementptr inbounds i8, i8* %call, i64 8
  %19 = bitcast i8* %consume_data to i32 (%struct.jpeg_decompress_struct**)
  store i32 (%struct.jpeg_decompress_struct*)* @consume_data, i32
  ... (%struct.jpeg_decompress_struct**) %19, align 8, !tbaa !29
  %decompress_data = getelementptr inbounds i8, i8* %call, i64 24
  %20 = bitcast i8* %decompress_data to i32 (%struct.jpeg_decompress_struct*,
  ... i8**)**
  store i32 (%struct.jpeg_decompress_struct*, i8**)* @decompress_data, i32
  ... (%struct.jpeg_decompress_struct*, i8**)** %20, align 8, !tbaa !30
  %coef_arrays = getelementptr inbounds i8, i8* %call, i64 32
  %21 = bitcast i8* %coef_arrays to i8**
  store i8* %whole_image17.pre-phi, i8** %21, align 8, !tbaa !31
  br label %if.end36
```

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if.end36:
  ret void
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```
if.else:
  %22 = load %struct.jpeg_memory_mgr*, %struct.jpeg_memory_mgr** %mem, align
  ... 8, !tbaa !2
  %alloc_large = getelementptr inbounds %struct.jpeg_memory_mgr,
  ... %struct.jpeg_memory_mgr* %22, i64 0, i32 1
  %23 = load i8* (%struct.jpeg_common_struct*, i32, i64)*, i8*
  ... (%struct.jpeg_common_struct*, i32, i64)** %alloc_large, align 8, !tbaa !32
  %call20 = tail call i8* %23(%struct.jpeg_common_struct* %2, i32 1, i64 1280)
  ... #5
  %MCU_buffer = getelementptr inbounds i8, i8* %call, i64 56
  %24 = bitcast i8* %MCU_buffer to i8**
  store i8* %call20, i8** %24, align 8, !tbaa !28
  %arrayidx26.1 = getelementptr inbounds i8, i8* %call, i64 64
  %25 = insertelement <2 x i8*> undef, i8* %call20, i32 0
  %26 = insertelement <2 x i8*> %25, i8* %call20, i32 1
  %27 = getelementptr i8, <2 x i8*> %26, <2 x i64> <i64 128, i64 256>
  %28 = bitcast i8* %arrayidx26.1 to <2 x i8*>*
  store <2 x i8*> %27, <2 x i8*>* %28, align 8, !tbaa !28
  %arrayidx26.3 = getelementptr inbounds i8, i8* %call, i64 80
  %29 = getelementptr i8, <2 x i8*> %26, <2 x i64> <i64 384, i64 512>
  %30 = bitcast i8* %arrayidx26.3 to <2 x i8*>*
  store <2 x i8*> %29, <2 x i8*>* %30, align 8, !tbaa !28
  %arrayidx26.5 = getelementptr inbounds i8, i8* %call, i64 96
  %31 = getelementptr i8, <2 x i8*> %26, <2 x i64> <i64 640, i64 768>
  %32 = bitcast i8* %arrayidx26.5 to <2 x i8*>*
  store <2 x i8*> %31, <2 x i8*>* %32, align 8, !tbaa !28
  %arrayidx26.7 = getelementptr inbounds i8, i8* %call, i64 112
  %33 = getelementptr i8, <2 x i8*> %26, <2 x i64> <i64 896, i64 1024>
  %34 = bitcast i8* %arrayidx26.7 to <2 x i8*>*
  store <2 x i8*> %33, <2 x i8*>* %34, align 8, !tbaa !28
  %add.ptr.9 = getelementptr inbounds i8, i8* %call20, i64 1152
  %arrayidx26.9 = getelementptr inbounds i8, i8* %call, i64 128
  %35 = bitcast i8* %arrayidx26.9 to i8**
  store i8* %add.ptr.9, i8** %35, align 8, !tbaa !28
  %consume_data31 = getelementptr inbounds i8, i8* %call, i64 8
  %36 = bitcast i8* %consume_data31 to i32 (%struct.jpeg_decompress_struct**)
  store i32 (%struct.jpeg_decompress_struct*)* @dummy_consume_data, i32
  ... (%struct.jpeg_decompress_struct**) %36, align 8, !tbaa !29
  %decompress_data33 = getelementptr inbounds i8, i8* %call, i64 24
  %37 = bitcast i8* %decompress_data33 to i32
  ... (%struct.jpeg_decompress_struct*, i8**)**
  store i32 (%struct.jpeg_decompress_struct*, i8**)* @decompress_onepass, i32
  ... (%struct.jpeg_decompress_struct*, i8**)** %37, align 8, !tbaa !30
  %coef_arrays35 = getelementptr inbounds i8, i8* %call, i64 32
  %38 = bitcast i8* %coef_arrays35 to %struct.jvirt_barray_control***
  store %struct.jvirt_barray_control** null, %struct.jvirt_barray_control***
  ... %38, align 8, !tbaa !31
  br label %if.end36
```

CFG for 'jinit\_d\_coef\_controller' function