

High Level Milestones

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Milestones	JIRA ID	Owner	Target Completion	Comments
Primitive rendering		Oracle /JetBrains		Implementation is done
Image rendering		JetBrains		Implementation is done (except for Bicubic interpolation - for which SW rendering fallback exists)
Text rendering		Oracle		Implementation is done
1st early access (EA-1)		Oracle /JetBrains	15 May 2020	Released
Stabilization and bug fixing		Oracle /JetBrains		In progress
IDE performance Testing		Oracle /JetBrains	TBD	
Execute JTREG tests and match current passrate		Oracle	TBD	Metal pipeline should pass all the same jtreg tests as OpenGL : i.e. no functional regressions
Pass all JCK tests		Oracle	TBD	
Functional complete with performance		Oracle /JetBrains	TBD	
2D Alias Review Start		Oracle /JetBrains	TBD	Lanai does not require reviews before pushing. Once we are functional complete, we should start reviews of the code to make sure it conforms to style /quality/etc expectations, as well as reviewing the code for correctness, robustness etc.

Task List

All active issues (including tasks, subtasks and bugs) in Lanai project can be accessed with JBS filter : <https://bugs.openjdk.java.net/issues/?filter=37832>

Early Access Release History

Early Access Release	Date	Contents
EA-1	15 May 2020	First EA release
EA-2	19 Jun 2020	Fixes on top of EA-1 <ul style="list-style-type: none">8247464: Memory Leak in MTLBlitLoops_CopyArea() method8247304: Use separate MTLCommandQueue for final blit and MTLDrawable8246495: Lanai: update AA clip info on GPU via compute shader8246454: Lanai: Create RenderPerf tests for rectangular and shape clips8242952: fixed MTLBlitLoops::replaceTextureRegion (add correct offset)8242354: support for bufImgOps (RescaleOp, LookupOp, ConvolveOp)8246331: Lanai: do not update AA clip info in nonAA mode8246239: Revert JDK-8244193 as it causes performance regression
EA-3	10 Jul 2020	Fixes on top of EA-2 <ul style="list-style-type: none">8242950: Files which can't be selected has different color with metal than opengl in JFileChooser8247772: Lanai: Several jtreg tests fails with assertion validateTextureDimensions: 759: failed assertion 'MTLTextureDescriptor has width greater than maximum allowed size of 16384'8248301: Lanai - Change MTLStorageMode of MTLSurfaceData texture (render backbuffer) to private

EA-4	08 Aug 2020	<p>Fixes on top of EA-3</p> <ul style="list-style-type: none"> • 8233226: Implement XOR Mode rendering option • 8247564: Lanai - SwingSet2 - Motif LF - UI controls border is incorrectly drawn with uiScale=1.0 • 8244402: Lanai - Motif L&F - Non selected Radio button is barely rendered on non-retina display • 8248831: Lanai : SwingSet2Demo Input dialog is not proper for MetallLookAndFeel with default non-retina display • 8240221: XOR mode rendering option does not work with Texture paint and Gradient Paint • 8247556: Lanai : J2DDemo - ImageOps demo - Few options are not working... • 8247831: Clamp texture height to maxTextureSize(16384) • 8249174: Fix improper glyph cache initialization logic for text rende... • 8243953: Optimize encoder creation/deletion logic for LCD text rendering
EA-5	18 Sep 2020	<p>Fixes on top of EA-4</p> <ul style="list-style-type: none"> • 8252845: Regressions in Sanity tests after JDK-8251032 • 8252798: Cleanup LCD text rendering code • 8252386: Lanai: Implement RadialGradientPaint in shader • 8252706: Enable usage of rowBytesOffset for LCD non cache rendering • 8251032: Colors with texture background look different with Alpha Com... • 8252385: Lanai: Implement LinearGradient paint in shader • 8243547: Lanai - Netbeans IDE has BLACK background for the Toolbar and Statusbar • 8240164: Test java/awt/Window/TranslucentShapedFrameTest/TranslucentShapedFrameTest.java fails for metal • 8240074: Test java/awt/Window/TranslucentJAppletTest/TranslucentJAppletTest.java fails for metal • 8251027: DrawString with TexturePaint is corrupted • 8242920: Gradient Paint doesn't work with metal • 8252371: LCD text rendered with Metal pipeline is corrupted • 8252217: Crash in metal pipeline which running J2DBench test • 8252057: Crash in metal pipeline when dragging any Swing app to other... • 8251484: Performace drop in FlatBoxAA renderperf test for metal pipeline • 8251242: Tile based rendering results in artifacts in last column while using metal pipeline • 8249659: [Lanai] Crash while running RenderPerfTest with metal pipeli... • 8251167: Drawing polyline twice in XOR mode leaves out some traces on screen (only with uiScale=1.0)
EA-6	08-Oct-2020	<p>Fixes on top of EA-5</p> <ul style="list-style-type: none"> • 8253931: Lanai: MTLTexturePool refactoring • 8253840: Lanai - MTLClip.beginShapeClip method uses a larger temporary buffer than needed • 8252790: Lanai: Refactor RenderPerfTest to run single test by name • 8253657: Lanai: Refactor MTLTexturePool - getTexture • 8251475: sun/java2d/pipe/hw/RSLAPITest/RSLAPITest.java fails with metal pipeline • 8246194: Performance of Mix.Balls decreases when Rendering Quality option is Selected • 8252796: Lanai: Shape clip test artifacts on MacBook Air 2020 • 8252499: UI text of application with metal pipeline is lost when another application is launched with OpenGL pipeline • 8253301: Lanai: Memory leak in MTLContext code • 8253260: Fix whitespace errors in .m and .metal files in lanai repo • 8252795: Lanai: Refactor native implementation of MTLPaint • 8251023: Clipping of Image doesnt work when Alpha composite is enabled in J2DDemo • 8252880: Image operations are not working with metal • 8252895: Black background in SwingSet2 in Nimbus LAF • 8252949: Shape clip should use identity transform for drawing clip spans
EA-7	18-Nov-2020	<p>Fixes on top of EA-6</p> <ul style="list-style-type: none"> • 8256331: Lanai: DrawImage/IncorrectAlphaSurface2SW fails • 8252954: Lanai : java/awt/datatransfer/DataFlavor/DataFlavorRemoteTest.java fails • 8252951: Lanai : java/awt/Robot/NonEmptyErrorStream.java fails • 8251033: Background texture is not visible when Alpha Composite is enabled • 8238533: [Lanai] Support texture paint where source is transparent • 8248129: Swingmark numbers are not good for Nimbus LAF • 8255212: J2DDemo : Rectangle in Texture paint disappears if we enable AA • 8255149: Lanai: DrawImage/IncorrectAlphaConversionBicubic.java failure • 8244718: J2DDemo - AlphaComposite tab - output colors are different with AA & non-AA • 8254881: Commit commandbuffer after draw happens through JNI • 8254879: Implement JNI path for Draw Poly • 8254869: Refactor check_previous_op usage in Mask Fill • 8244845: Lanai : J2DDemo - Clipping - Two parallel lines do not appear with AA Rendering • 8242924: Selection is not correct in Paint.TextureAnim • 8253994: J2DDemo: Buttcap, SquareCap color is different in AlphaComposite mode • 8252726: Lanai: IDEA Editor Rendering OGL vs Metal 1:2 • 8254176: Lanai: MTLTexturePool optimize lookup of expired textures

EA-8	17-Dec-2020	<p>Fixes on top of EA-7</p> <ul style="list-style-type: none"> • 8257886: Build issue in macOS 10.14 • 8256683: Lanai: NetBeans IDE - AA Text rendering appears brighter compared to OpenGL • 8242925: J2DDemo - Anti-Aliasing with Metal differs from OGL • 8257618: Lanai: GradientPaint interpolates over stops limits • 8257566: Lanai: System runs out of application memory while running the Unmanaged_BufferedImage_draw_NearestNeighbor test multiple times • 8257441: Lanai: java/awt/image/VolatileImage/DrawHugeImageTest fails • 8257442: Lanai: Create RenderPerf tests for SW to HW blits • 8257413: Lanai - Use optimum sized temporary buffer while replacing texture region • 8238285: Lanai: java/awt/image/DrawImage tests fail • 8256576: DrawImage/BlitRotateClippedArea fails
EA-9	26-Jan-2021	<p>Fixes on top of EA-8</p> <ul style="list-style-type: none"> • 8258658: Print log that metal pipeline is enabled when -Dsun.java2d.metal=True is set • 8260000: Remove JNF_COCOA_ENTER/EXIT usage from MTLGraphicsConfig.m • 8258754: Gracefully fallback to the OpenGL rendering pipeline if Metal rendering pipeline initialization fails • 8259853: Lanai: nonAA Gradient painting is not precise for VI • 8259939: Remove JNF_COCOA_ENTER/EXIT usage from Lanai project • 8258202: Lanai: Buffered image loses its shape after clicking on Alpha Composite option • 8258202: Lanai: Buffered image loses its shape after clicking on Alpha Composite option • 8252950: Lanai : sun/java2d/DirectX/OpaqueImageToSurfaceBlitTest/OpaqueImageToSurfaceBlitTest.java fails • 8259653: Multistop gradients incorrectly works with non uniform stops • 8245256: Cleanup OpenGL references in Metal documentation • 8259341: Remove useage of JNFCallVoidMethod from Metal. • 8259038: Stop CVDisplayLink when there is no active rendering • 8247332: Checkbox reaches inconsistent state on tap to click • 8251477: java/awt/Frame/MiscUndecorated/RepaintTest.java fails with metal pipeline • 8247739: Lanai : SwingSet2Demo -More than one radio button can be selected the same time • 8252501: Sometimes more than one menu items are shown as highlighted on hover • 8242187: Lanai - JCheckBox and JRadioButton can get into inconsitent visual state – but recover on window refresh • 8252907: Motif L&F - SwingSet2 - Two Toolbar buttons are shown as selected • 8258482: Lanai: reduce data for shape clip using bounding box • 8258257: Lanai: optimize stencil texture clear code