OAv2 RC7 Relase Notes

- Release status - Ghostscript
- Datasets, devices and rationale
- Acceptance criteria
  - Visually? PSNR? SNR? Other?
- Next steps – Ghostscript
- Other changes

GhostScript

- Version 8.54 of ghostscript has been integrated with the EEMBC build.
- The code uses the internal compressed file system to reduce the size of the executable.
- New datasets and devices.

Release Status

Testing	Debug	Release
THIO=1	winxp,x86,VS8 x86,gcc3.44,gcc3.4.6,gcc4.10 ppc,gcc3.4.4	winxp,x86,VS8 x86,gcc: ERROR ppc,gcc: ERROR
THIO=0	winxp,x86,VS8 x86,gcc3.44,gcc3.4.6,gcc4.10 ppc,gcc3.4.4	winxp,x86,VS8 x86,gcc3.44,gcc3.4.6,gcc4.10 ppc,gcc3.4.4

- Planned testing: Simulated ARM with RealView, Simulated PPC and MIPS with GHS
- Asked Artifex regarding fail, they said might be compiler issue. Believe may be related to FP handling.
  - Please help test with other toolchains!
- Similar issue exists with some gcc chains in previous release!

Release Status

- New datasets added and some removed:
  - Removed default GS examples
  - Removed EEMBC journal
    - Bitmap image, less useful then jpeg
- Executable size (down from 12M)
  - With GCC <6M, with VC <5M
- New devices added, others removed
  - pdfwrite removed (on advice of Artifex)
  - spotcmyk replaced with bitcmyk – flexible depth

Datasets - Rotate-fontlist2.ps (old)

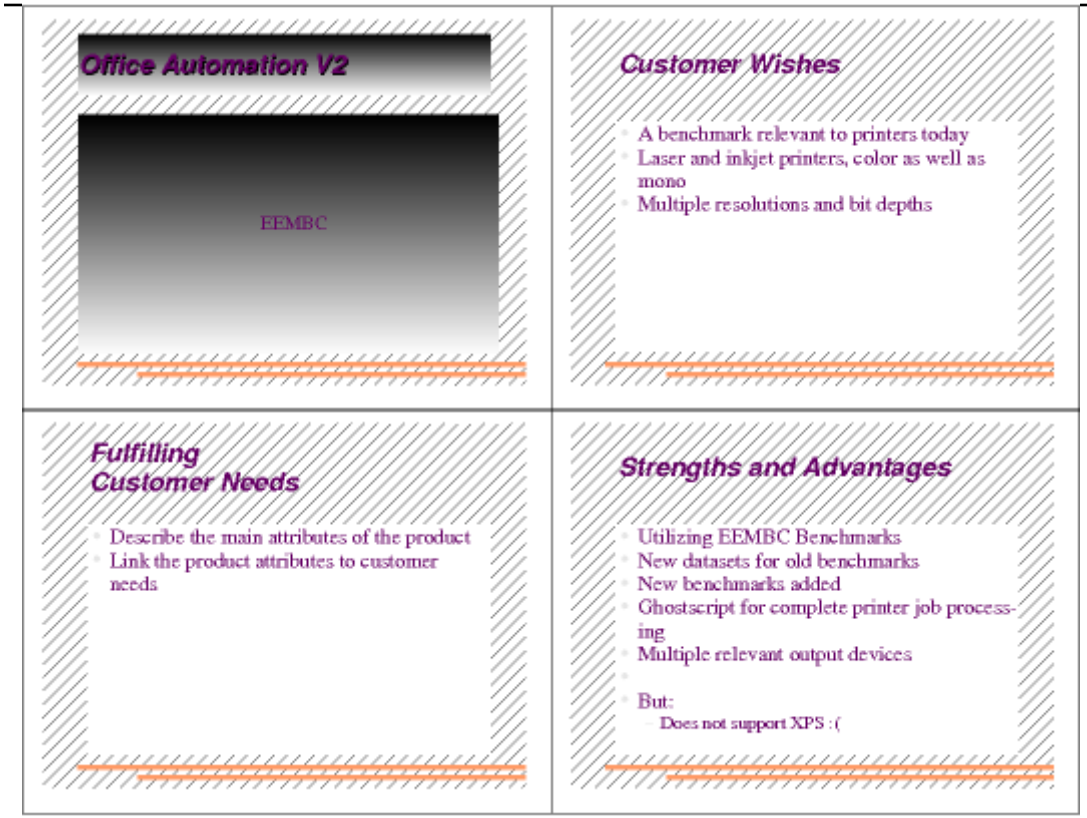
NimbusRomNo9L-Medi ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefihjklmnopqrstuvwxyz 0123456789 ‘’ @%&$
Times-Bold ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefihjklmnopqrstuvwxyz 0123456789 ‘’ @%&$

- In landscape orientation, 10x, 1 per page

Datasets – banner.ps

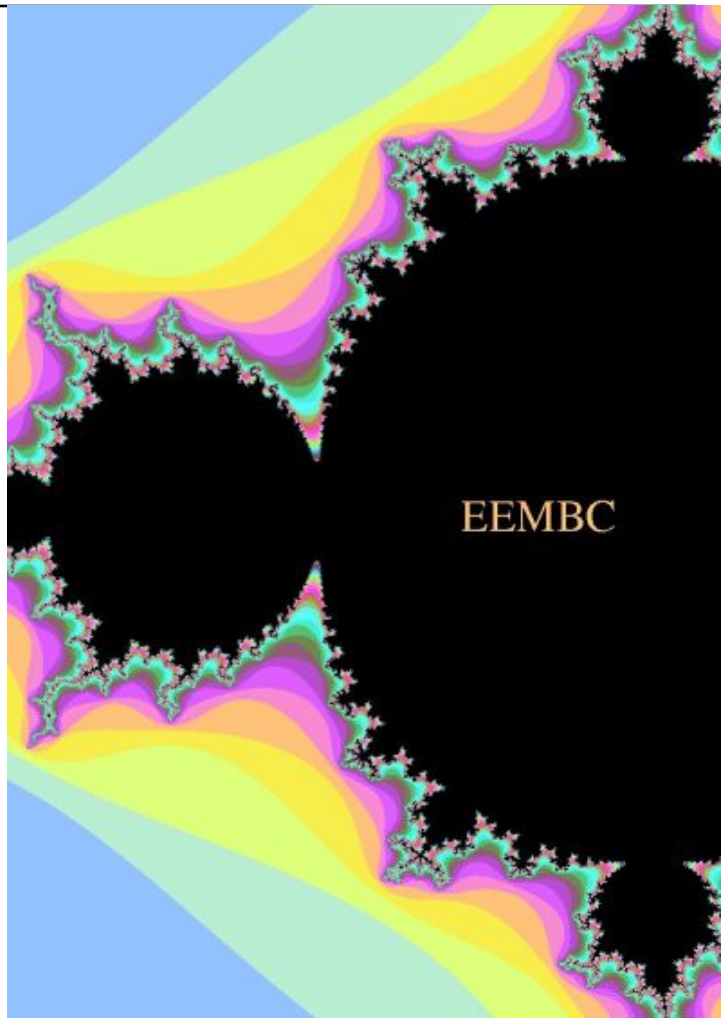
- 16x, 4x4n-up

Datasets – presentation.ps/pdf



- PS version – Sent 4x, and printed 4x4 n-up
- PDF Version – Sent 1x, 1 per page

Datasets – mandel.ps



- Intensive computation

Datasets - fractal-fern.ps

- Intensive computation, Monochrome

Datasets – Spreadsheet.ps

- Sent 4 times

Datasets - Photo.ps

EEMBC

- Printed in 300DPI

Datasets – ebreadme.ps

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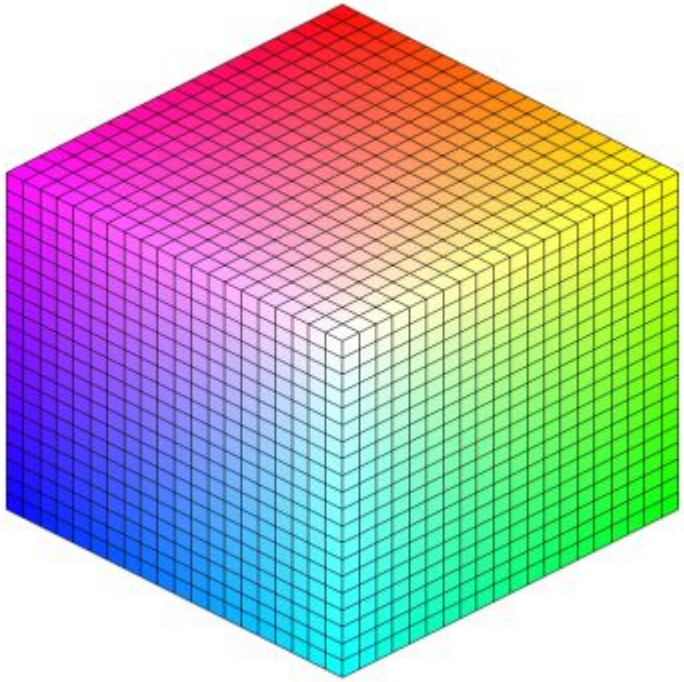
VI documentation
================
Sampling modules:
 logger-1plane-main.vi
 logger-2planes-main.vi
 logger-3planes-main.vi
 These sampling modules work as follows:
 1. Rename the daq card being used to DAQ
 2. All channels to be measured are differential, connect as follows
        a. Trigger channel is at DAQ/ai0
        b. Current channels are to be connected to ai1/ai3/ai5 for
rail1/rail2/rail3
        c. Voltage channels are to be connected to ai2/ai4/ai6 for
rail1/rail2/rail3
 3. Follow the example at util/make/levels.txt to set the voltage levels for
chnnels and for the trigger
 4. Invoke the module with the following parameters
        a. /output=<full path to output xml file>
        : this will be the file where all output samples are saved.
        b. /autogo
        : to make the module quit when done
        c. /rate=$FREQ1
        : to determine sampling frequency
        d. /info="$INFOTAG"
        : to setup misc information such as company name etc.
        e. /input=<full path to file with levels>
        : this will read in the voltage levels from the file
 5. The module will wait for trigger to be in range of trigger-on values, the
start sampling until trigger is in range of trigger-off.
 All values will be logged to the file defined at /output.

Analysis modules:
 Anaylzer-main-2rails.vi
 Anaylzer-main-3rails.vi
 Anaylzer-main.vi
 Invoke an analysis module to analyze the values obtained with a sampling mod
with the following parameters:
        a. /input=<full path to xml file written by corresponding sampling
module>
                : This will set the input file with all the samples
        b. /output=<full path to output text file>
        : This will set the output file to write to
        c. /autogo
        : This will make the module quit when done.
        d. /its=<benchmark iterations per second>
        : This will set iterations per second, so that energy per
        iteration can be calculated
        e. /levels=<full path to file with levels>
        : This will make sure no samples analyzed past trigger.
        f. optional: /iterations=<max number of iterations to analyze>
        : This will set specific number of iterations to analyze

Other Helper scripts:
=====================
Calc Power.vi
        : Calculate power from reistor, voltage and current channels.
Convert to text.vi
        : Convert binary and xml file to excel readable text file (activate
analyzer module in manual mode)
Extract number of samples.vi
        : Find number of samples in file
Statistics.vi
        : calculate avg, min, max, RMS and std dev.
Stats to String.vi
        : convert stats to a string
detect trigger off in next iteration.vi
```

- Energybench readme
- 2 page text file, sent 8x, printed 4x4 n-up

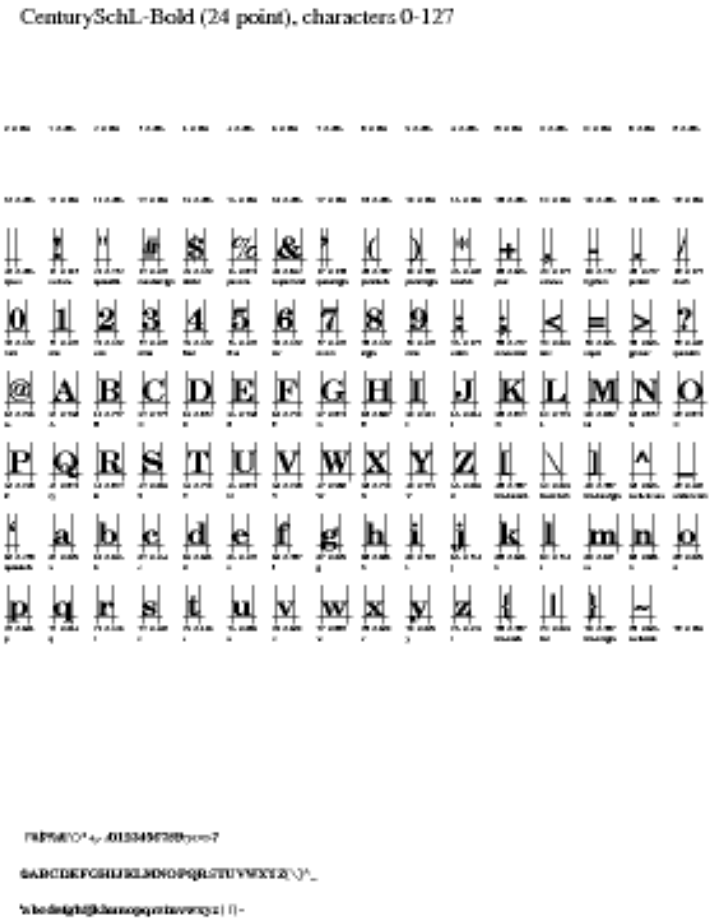
Datasets – 3dcolor.ps



- Sent 4 times to same page
- Can be used for training

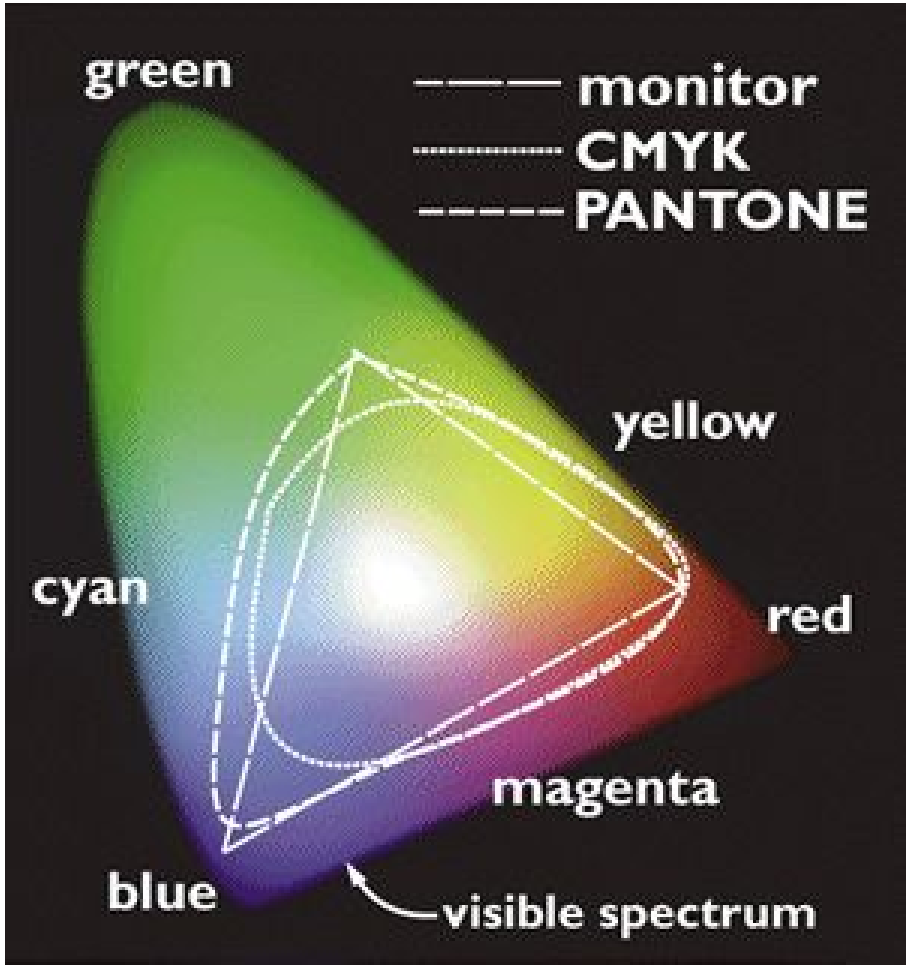
Datasets – font catalogue

- Draw all chars of every available font.
- Can be used for training.



Quick color reference

- Monitor: RGB
- Printer: CMYK



Devices

- bitcmyk: RAW CMYK data
  - Most important device for color printers. Not tied to any specific printer.
  - 1/2/4/8 bits per color plane
- tiff: monochrome fax format
- bmp256: viewable bitmap for verification
- deskjet/laserjet: actual printer formats.
  - Tied to a specific printer (HP). Good or Bad?
  - Officially provided by HP.
  - Not viewable

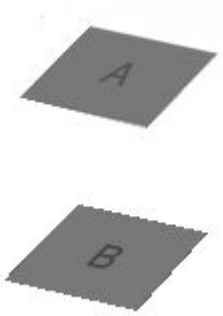
Resolution

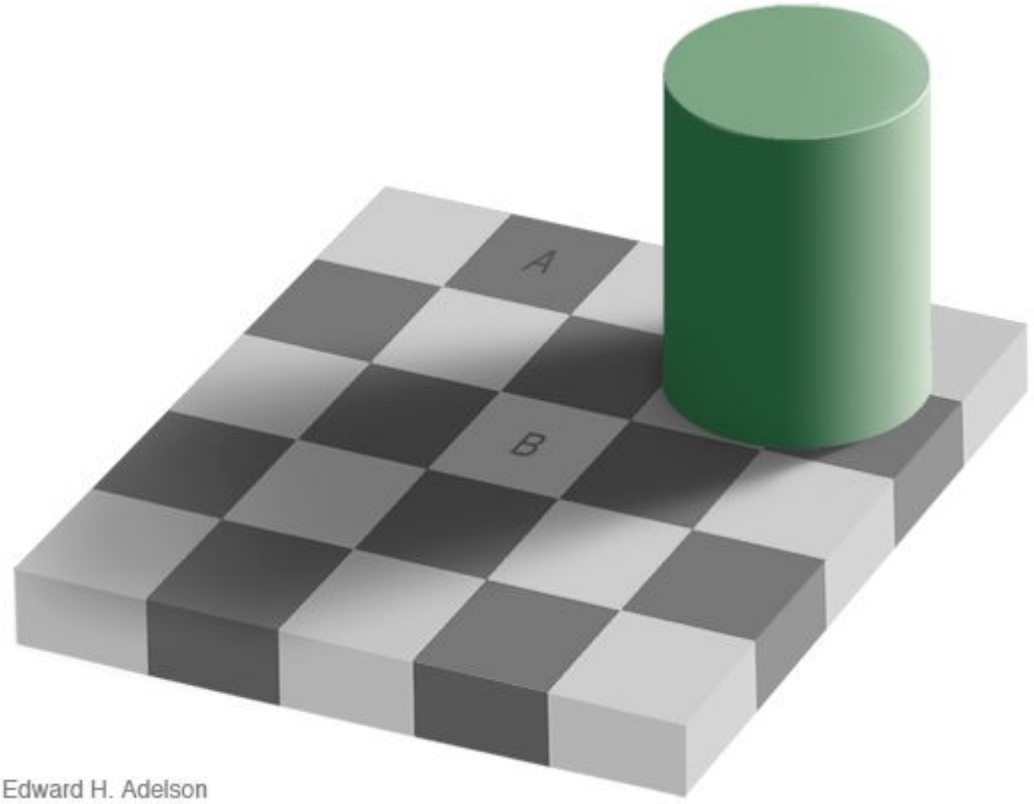
- Default device resolution is 72DPI (screen)
- Output size per page depends on DPI and bit depth
  - e.g for 1bit per color place device size per page:
    - 72DPI = 237K
    - 300DPI = 8M
    - 600DPI = 32M
  - So for full 8b per color, we are looking at 256M for a single page at 600DPI
- Photo dataset at 300DPI, and all the rest at 72DPI

What makes sense matrix

	Deskjet	Laserjet	Tiff	BMP	CMYK1b	CMYK2b	CMYK4b	CMYK8b
3dcolor	x	x	x	x	x	x	x	x
2fonts	x	x	x					
Fern			x					
Excel				x	x	x	x	x
ppt (PS)			x		x	x	x	x
ppt (PDF)				x	x	x	x	x
Mandel				x				
Text	x	x	x		x	x	x	x
Photo				x		x	x	x
All Fonts					x			

Acceptance Criteria





Edward H. Adelson

- Visually?

Acceptance Criteria

- Issues with PSNR
  - Normally PSNR is done on the intensity in YUV color space. Not as reliable a measure of quality when working on RGB or CMYK color space.
    - In CMYK, one 0x0 vs 0xffff pixel in 64K pixels
      - PSNR -> 40
  - How much should be invested?
  - A: Just use SNR
  - B: Just use PSNR
  - C: Spend resources to find a good method

Next Steps

- Testing by members
  - Fixes for issues discovered by members
- ETC testing on more tool chains
  - Fixes for new issues
- Use static analysis to avoid bugs (Multi-5)
- Final decision on datasets/devices
- Final decision on acceptance criteria

Other changes

- First dataset for each benchmark is now reserved for training.
- Bezier benchmark now saves data from each interpolated point, and tests SNR in floating point mode.
- Only th_lite is supported.

Datasets - bezier

- Data1: random data 18.75KB (original), and verification data of 4.69KB (new)
- Data2: random data 1MB, and verification data 256KB.
- Data3: Nasdaq daily open, min and max values 276.69KB, and verification data 69.17KB
- Data4: DJIA monthly values 8.34KB, and verification data of 2.09KB.

Datasets – pgm (rotate & dither)

- 184K DavidAndDogs.pgm (Reserved for training)
- 532K DragonFly.pgm
- 304K EEMBCGroupShotMiami.pgm
- 120K Galileo.pgm
- 76K Goose.pgm
- 76K Mandrake.pgm
- 380K MarsFormerLakes.pgm
- 36K Rose256.pgm
- 140K dragon.pgm
- 68K graydient.pgm
- 16K medium.pgm

Datasets - text

- 8.0K ruledata1.txt (reserved for training)
- 8.0K ruledata2.txt
- 16K ruledata3.txt
- 16K ruledata4.txt
- Should more substantial dataset be created? If so, what size?