



Open video for the web

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Only five months after WebM launch, lots to talk about:

- WebM overview
 - Project highlights since launch
 - Partners update
 - VP8 “Aylesbury” release
 - Development plans
 - Questions
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WebM overview

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What is WebM?

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- High quality, open alternative for **web video**
 - **VP8** video
 - **Vorbis** audio
 - **Matroska**-based container
- Launched May, 2010

- VP8 video
 - DVD-quality at less than **1 megabit/second**; **1080p HD ~6 megabits/second**
 - Simple design, **low underlying computational complexity**
 - Any VP8 decoder can play any VP8 stream
 - Exceptional **realtime/live encoding** performance
- Vorbis audio
 - **CD quality** at ~160Kbps @ 44.1 kHz
 - Mono, stereo, 5.1/7.1 surround, etc.
 - Open project managed by the Xiph foundation

- Focus on **video for the web**
 - Make web video a **great user experience**
 - Support WebM in all browsers in HTML5 <video>
 - Provide an **open choice** to the market
 - **Collaborate** with our developer community
 - **Fundamental innovation** in all aspects of web video
 - Proliferate WebM widely in **hardware**
 - Make web video **easy**
 - Any VP8 decoder can play any VP8 stream
 - Simple file format, simple encoding
 - Widely available in encoding tools
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Project highlights

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Only five months after launch



Community

- Growing developer community
- FFmpeg native decoder
- WebM Summit
- 20+ new partners & supporters
- Streaming Media Europe award (Fluendo WebM live webcast)

Integrations

- Firefox 4, Opera 10, Chrome 6+, IE9*, Safari 5*
- Skype 5 multi-party conferencing
- YouTube HTML5 beta (80% daily videos available in WebM)
- Many software players, encoding tools, OVPs, cloud services

Platforms

- x86, Atom, ARM, PPC
- Windows, MacOS, Linux
- Android
- DShow/WMF/QuickTime/ gstreamer
- ASICs, hardware

Improvements

- libvpx "Aylesbury" release
- libwebm muxer/demuxer
- WebM validator tool
- Nightly automated quality and performance testing

*If the user has installed WebM codecs on the system

Partners update

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Partners and supporters

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Building the WebM ecosystem



Encoding tools and services

- support in standard video encoding products
- support from OVPs and cloud encoding services

Embedded support

- CPUs, GPUs, MCUs, DSPs
- VP8 RTL available
- ARM-optimized software available at WebMproject.org

Player technology

- adoption across browsers
- support in ubiquitous players

Content protection

- DRM in HTML5
- DRM support for WebM/VP8 possible at codec, wrapper, or HW level

*If the user has installed WebM codecs on the system

- First VP8 ASIC chips expected from vendors in Q1 2011
 - Very low power, up to 1080p decoding
- Tier1 semiconductor manufacturers working to support WebM
 - Software optimizations, accelerators, full hardware implementations
 - TI OMAP 4: 1080p30, low power
- Devices available in some markets by Q1 2011
- Hardware designs available from Google and partners
 - Decoding available now, encoding in Q1 2011
 - Licensed to over a dozen semiconductor manufacturers already

VP8 SDK "Aylesbury"

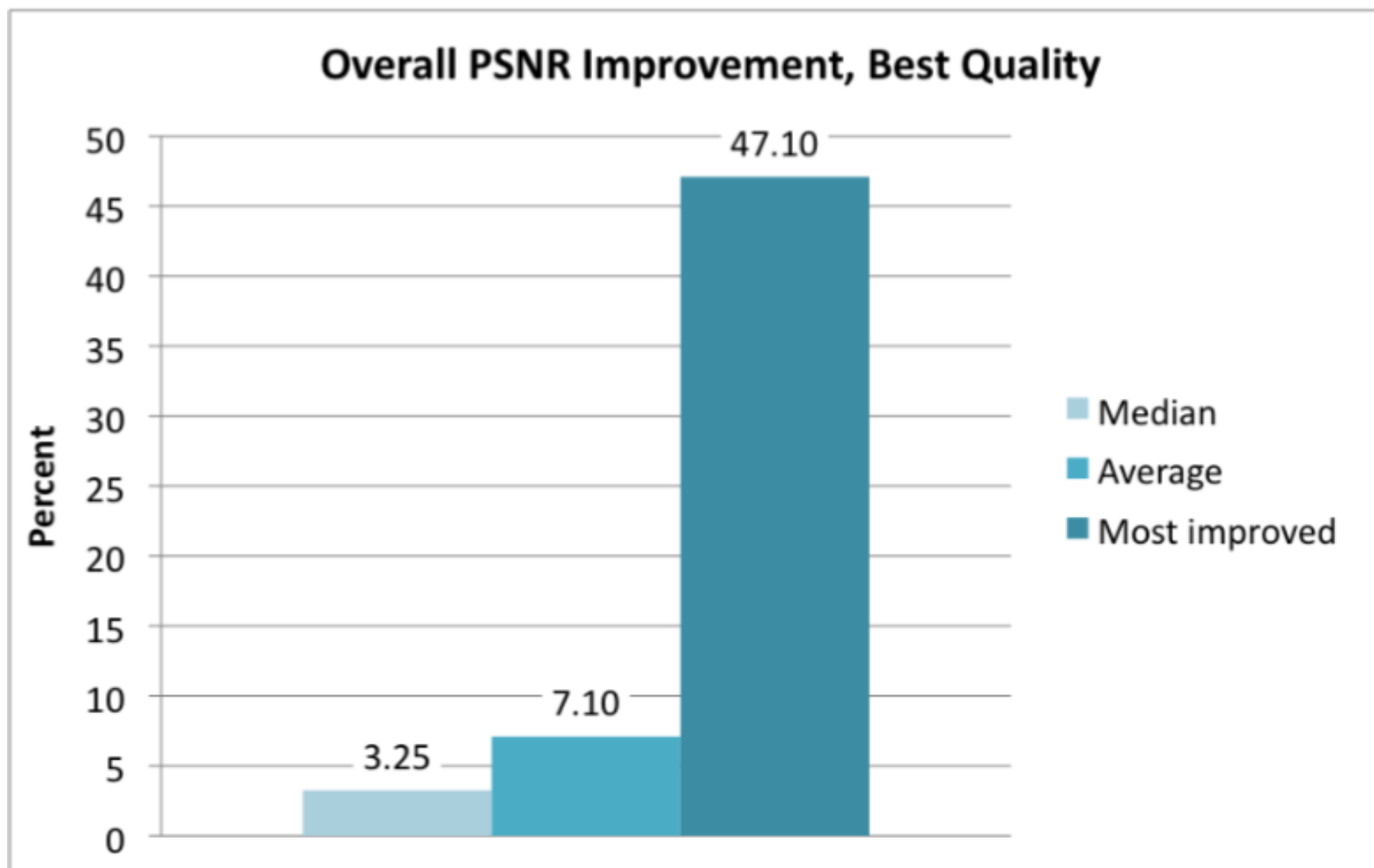
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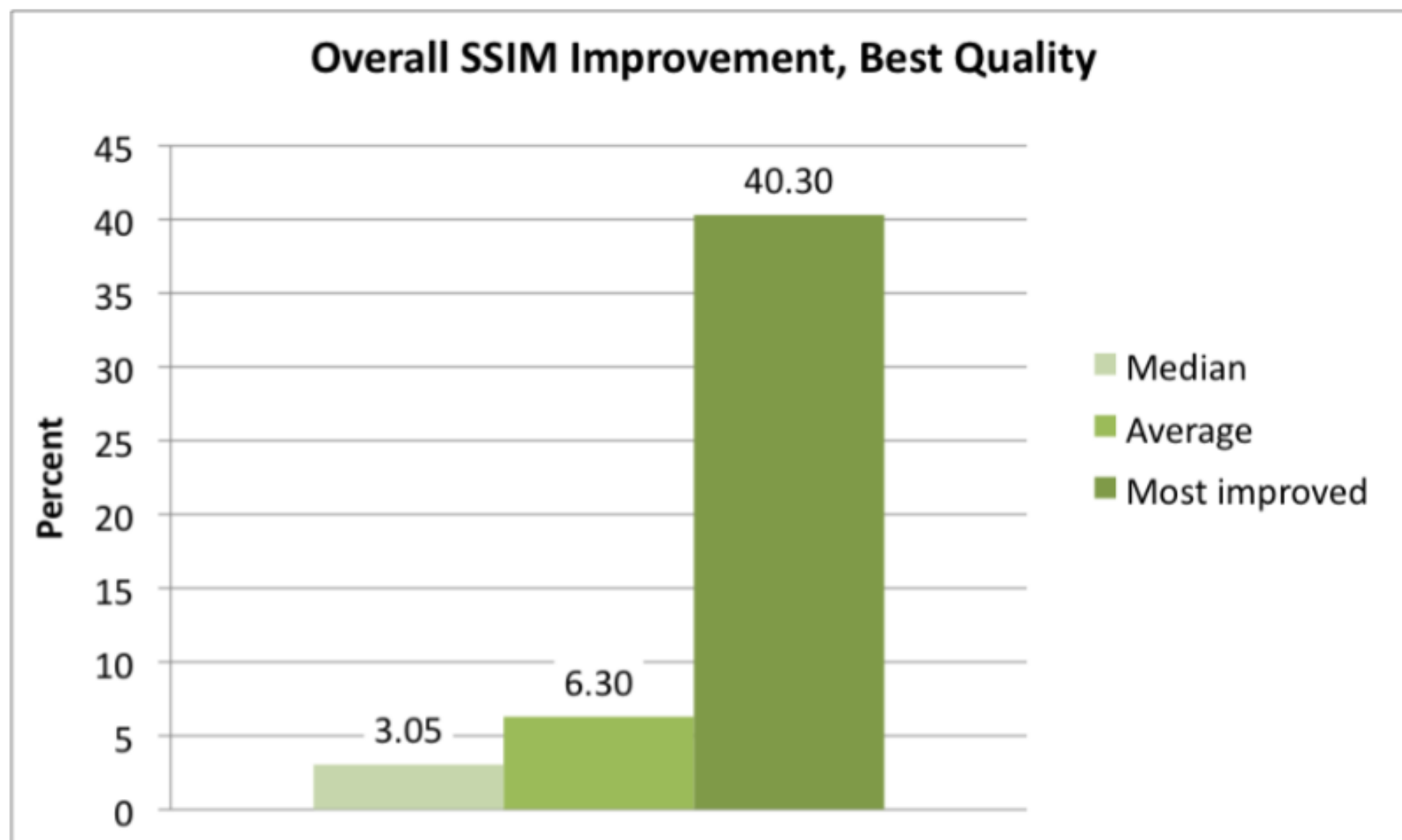
“Aylesbury” project goals

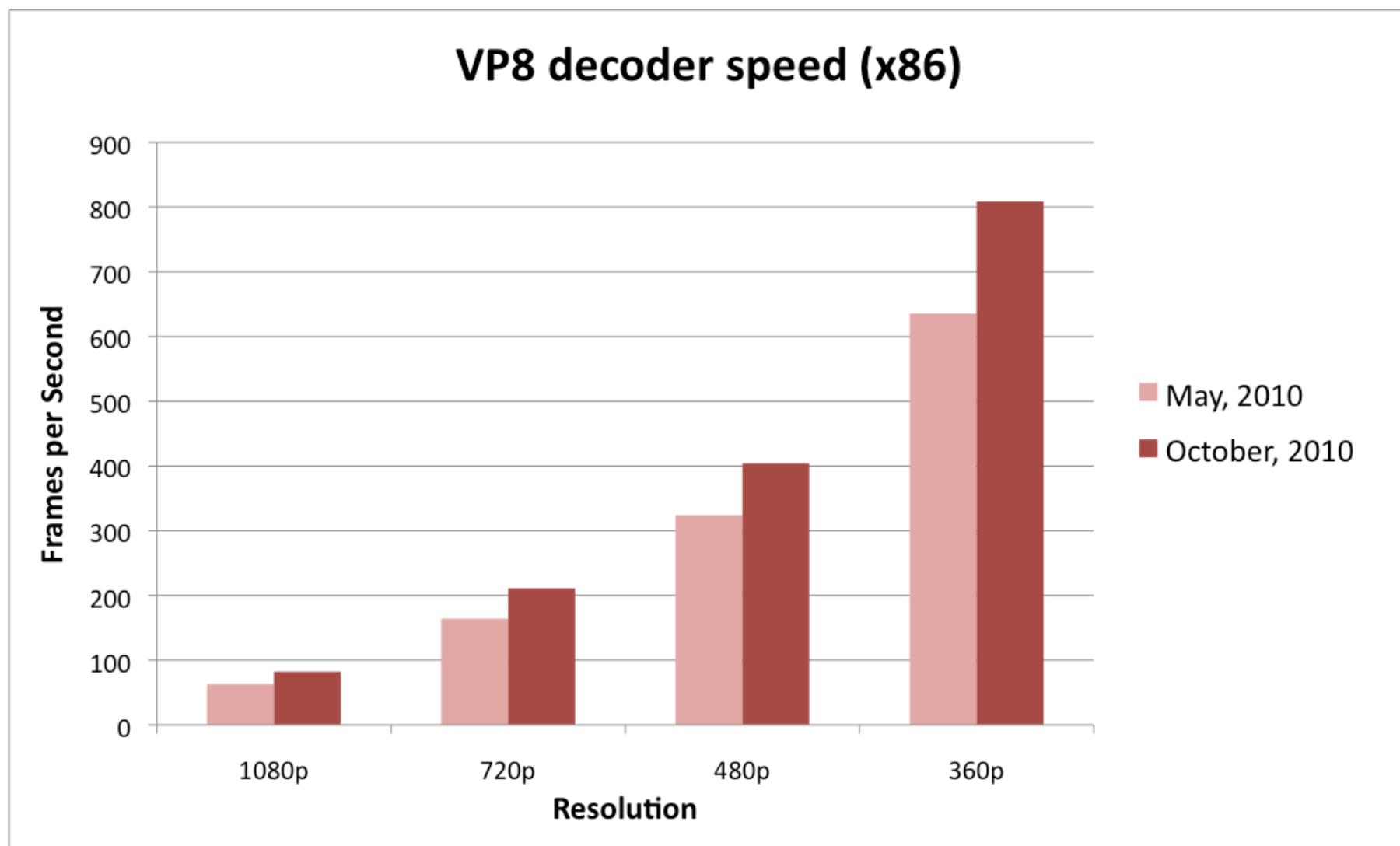
- Core VP8 codec SDK (libvpx)
- Focused on VP8 decoder performance, encoder quality
- Results:
 - Avg. **28% improvement** in decoder speed
 - **+7% overall** PSNR improvement in “best” VP8 encoding quality
 - **+6.5% overall** SSIM improvement
- Improved developer tools, bug fixes, QuickTime components



Photo: Allan Hack ([flickr.com/people/aehack/](https://www.flickr.com/people/aehack/))







Development plans

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- Q1 2011
- Focused on **VP8 encoder speed**
- Goals:
 - Dramatically faster encoder
 - Improved user playback experience
 - Public continuous build & test system
 - Expand test clip set



Photo: Steven G. Johnson (math.mit.edu/~stevenj/)

- Live http encoding & streaming in <video>
 - Adaptive bitrate http streaming in <video>
 - “RTC over web” - realtime telecomm in the browser
 - Vorbis multichannel improvements
 - VP8 RTP payload specification
 - Subjective (i.e., "human") video quality testing
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Questions?

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Thank You

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