CineSat System Size

DRAFT, February 12, 2014
Status: Figures and dates are ok, already approved,
text to be reviewed

A Comprehensive Software Suite

The CineSat software suite consists of dozens of feature-rich subsystems and several dozens of interfaces to data and systems, as well as many innovative features and designs.

The significant increase of application coverage is reflected in the growth of the software by a factor of 3 from 2005 to 2013.

The following size information is based on CineSat 4.5 as of February, 2014.

Code Type	Files	Lines of Code
C	110	232893
Java	246	103374
Shell/Config	942	154841
Help	233	55353
Total	**1531**	**546461**

Plus

Complementary Documentation		
Source	**Documents**	**A4 Pages**
Support Wiki	334	970
PDF Documents	4	400
Training Material	6	220
Total Pages		**1590**

A4 page count:

- 40 lines per A4 page
- 80 characters per line

Code Size Illustration: Print-out

If printing CineSat source code with typically 40 lines per page, you get 13662 pages or a paper stack of more than 1.5 meters high.
Including documentation, it will be 15252 pages, or a paper stack of 1.68 meters high.

Code Size Illustration: Software Walk-through

An important rule of Software Walk-throughs is that in an inspection you should cover a maximum of 100 lines of code per hour and a maximum of 400 lines of code per day (see e.g. here for details). A complete CineSat software walk-through would last 5.2 man years (271 man weeks).

If you assume a yearly 10%-20% portion of software affected by maintenance works, the code reviews for maintenance only are 27-54 man weeks per year.

COCOMO Model

Software Development Estimate for CineSat

COCOMO (Constructive Cost Model) is an algorithmic software cost estimation model. The basis for this estimate here are the Cocomo model parameters for the development and maintenance of an operational real-time software.

Development Effort

Development Effort Estimate		
Lines of Code	546461	
Development effort	1797.4 man months	149.8 man years
Development duration	43.1 months	3.6 years
Developers needed	41.7	

Yearly Maintenance

Yearly Maintenance		
Yearly changes	15% (=81969 lines of code)	
Yearly effort	269.6 man months	
Required developers	22.5	
Required Developers Total:	**64,2**	

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