

A Compiler Framework to Support and Exploit Heterogeneous Overlapping-ISA Multiprocessor Platforms

Christopher S. Jelesnianski

Thesis submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

Master of Science
in
Computer Engineering

Binoy Ravindran, Chair
Antonio Barbalace
Changhee Jung

October 28, 2015
Blacksburg, Virginia

Keywords: Compilers, Heterogeneous Architecture, Performance Profiling,
Runtime, Code Transformation, System Software

Copyright ©2015, Christopher S. Jelesnianski.



As a test of fair use in ETDs at Virginia Tech: Intel Xeon Phi Coprocessor compared to traditional Methods
 Image test of

Fair Use Factor	In Favor of Fair Use	In Favor of Copyright Holder (not fair use)
Purpose and Character of Use commercial or educational use for profit or not degree of transformation; value added for criticism, commentary, news reporting, teaching, scholarship, research	<input checked="" type="checkbox"/> Research	Commercial activity
	<input checked="" type="checkbox"/> Scholarship	Profit (monetarily) from use
	<input type="checkbox"/> Nonprofit university	Entertainment
	<input type="checkbox"/> Criticism	Bad-faith behavior
	<input checked="" type="checkbox"/> Comment	Denying credit to original author
	<input checked="" type="checkbox"/> Transformative: changes the original work for new purpose	
	<input type="checkbox"/> Parody	
Nature of the Copyrighted Work character of the work for example, fact or fiction worthy of (extensive) protection?	<input checked="" type="checkbox"/> Published work	Unpublished work
	<input checked="" type="checkbox"/> Factual or non-fiction based	Highly creative work (art, music, novels, films, plays)
	<input type="checkbox"/> Important to favored educational objectives	Fiction
Amount and Substantiality use only what's necessary quantity and quality in relation to the whole work	<input checked="" type="checkbox"/> Small quantity of the work	Large portion or whole work used
	<input checked="" type="checkbox"/> Portion used is not central or significant to entire work	Portion used is central to work or "heart of the work"
	<input checked="" type="checkbox"/> Amount is appropriate for favored educational purpose	
Effect harm to potential market or value of a work after a portion has been used separately from the whole	<input type="checkbox"/> User has lawfully acquired copy of the original work	Could replace sale of copyrighted work
	<input checked="" type="checkbox"/> One or fewer copies made	Significantly impairs market or potential market for copyright work or derivative
	<input checked="" type="checkbox"/> No significant effect on the market or potential market of copyrighted work	Reasonably available licensing mechanism for use of the copyrighted work
	<input checked="" type="checkbox"/> No similar product marketed by the copyright holder	Affordable permission available for using work
	<input type="checkbox"/> Lack of licensing mechanism	Numerous copies made
	<input type="checkbox"/>	You made it accessible on Web or in other public forum
	<input type="checkbox"/>	Repeated or long term use