



*THE CURRENT STATE OF  
SEMICONDUCTOR INTELLECTUAL  
PROPERTY (SIP) LICENSING*

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## A. PREAMBLE

Reuse of semiconductor Intellectual Property (SIP) remains a key concern for all stakeholders in the fabless and semiconductor outsourcing world. As the number of transistors per die has increased geometrically, the success of an independent, third-party SIP industry has become crucial to the long-term health of the fabless business model.

More simply, the engineering resources needed to fill die space are well into the hundreds, if not thousands, of man-years of effort. It is not feasible for a company to design an IC from scratch each time. Furthermore, it isn't practical for one device company to maintain the internal expertise to handle all aspects of design, whether those disciplines are digital, analog, microprocessor, memory or I/O. Making this problem even more acute is the fact that time-to-market pressures are increasing with each passing month. And IC designers have an ever-decreasing market window that can only be met by reusing pre-designed functional components.

These pre-designed functional components are often less costly than internally designed components, less risky – especially if they have been already proven in silicon – and can provide a faster yield ramp.

FSA's Board of Directors has long recognized that one of the most significant issues facing the fabless and outsourcing industry is the availability and quality of semiconductor IP. FSA formed the IP Subcommittee to address a number of issues relating to SIP – chief among these were SIP quality and business issues surrounding SIP, including licensing concerns.

In February 2003, the IP Subcommittee created a separate working group – the Industry Baseline Working Group (IBWG).

The purpose of the IBWG was to produce an educational document detailing the business and legal issues associated with identifying, evaluating and licensing SIP. FSA published the results of this group's efforts in June 2003 in a report named *the FSA SIP Business Handbook*, which has been well received by the FSA community.

Updated in 2006, a significant portion of the *SIP Business Handbook* was devoted to a high-level discussion of the issues encountered in SIP licensing. This document update is being re-released with this white paper as a reference document for various IP business models.

Recognizing that common taxonomies and a checklist of terms and issues for consideration in third-party IP negotiations would be a valuable educational resource for FSA membership, FSA established the FSA IP working group to identify common issues encountered in these negotiations for use by third-party IP integrators. This document summarizes these findings.

As a point of reference, the working group spent several weeks reviewing the first of the Model License Agreements (MLAs) licensed from the Virtual Components Exchange (VCX) developed years earlier. In the course of this review, the participants expressed a number of differing viewpoints on several of the substantive areas in the license agreements. This white paper examines the context of the VCX Model License Agreement and the differing issues expressed.

It is important to understand that this paper does not endorse any particular approach. It merely summarizes the discussions that took place and articulates the viewpoints expressed.

## B. THE CONTEXT OF THE MODEL LICENSE AGREEMENT

For those readers unfamiliar with the VCX Model License Agreements, some context is necessary to understand exactly what was being reviewed.

In 1998, Scottish Enterprise founded the Virtual Component Exchange (VCX), an organization with a purpose to address the legal and business issues associated with licensing semiconductor IP. VCX recognized that a significant impediment to the development of a robust SIP market was the licensing process: its research established that in certain cases the licensing process could take up to 22 weeks. A panel of industry experts VCX assembled to examine ways to simplify the licensing process recommended that VCX form a Contract Development Working Group (DWG) and set about to create Model License Agreements (MLAs) for use in SIP transactions. The VCX began this effort in 1999 with representatives from the SIP user, SIP provider, EDA and pure-play foundry industries. The VCX Contract DWG produced a body of license agreements for use in different SIP licensing transactions.

The VCX Model License Agreements were designed such that a user could choose different variants of model clauses to suit the particulars of a transaction. Each agreement is accompanied by detailed instructions and “drafting notes.” The drafting notes explain the origin and purpose of each clause and exactly how and why the VCX Contract DWG arrived at the language reflected in the agreement.

## C. ASSUMPTIONS

The following assumptions should be taken into consideration when reviewing this document:

- The scenario chosen for the initial review is a single, hard IP block licensed for use in a single device. This is representative of one of the scenarios one might encounter when licensing SIP. As noted previously, the *SIP Business Handbook*, which defines many of the common business and licensing models, should be a useful complement to this white paper.
- This document is intended primarily as an educational resource for FSA membership. It is not intended as a recommendation of a particular approach or an evaluation among differing approaches. It is merely a reflection of the substance of the discussions that occurred in the working group meetings.
- This document does not cover every section of the VCX MLA; rather it covers the sections where considerable discussion of substance was in question by the members of the working group.
- This document is meant to be read in tandem with the *SIP Business Handbook* licensing section. The *SIP Business Handbook* contains a general discussion of the major issues in SIP licensing. This document will provide real-world context to the white paper. The *Handbook* is a more general and comprehensive resource. It provides not only general information about SIP licensing issues, but also important information about types of SIP, licensing, support and maintenance models, and some current industry trends in SIP licensing.

## D. DISCUSSION SUMMARY

### 1. Scope of License Granted

The Scope of License Provision is Clause 2 of the VCX License Agreement. For those unfamiliar with SIP Licensing, the Scope provision normally describes the grant of license from the licensor to the licensee. This is considered an important provision in an SIP license because it clarifies the exact scope of rights that the

licensee is granted. Paying careful attention to the Scope of License provision can avoid problems in interpretation later on in the relationship.

The Scope of License provision in the original VCX License Agreement is divided into five subsections covering (1) use, (2) copying, (3) modification, (4) distribution and (5) sublicensing of the SIP. The following sections generally describe the VCX Model License provision.

Table 1.1 in the *SIP Business Handbook* contains a list of some SIP Use Scope models. Table 1.1 and Section 3 of the *Handbook* will provide the reader of this paper with some useful business model context for white paper Sections 1.1 to 1.7. It describes the underlying business case for many of the licensing scenarios reflected in the VCX License Agreement.

In addition, Section 4.3 of the *Handbook* provides some useful context for Sections 1.1 to 1.5 of this Paper.

### 1.1 Use

The VCX Model License Agreement provision grants the licensee the right to design and Manufacture the Permitted Device(s)<sup>1</sup>. The phrases "...or have designed..." and "...or have manufactured..." were included to permit the licensee to use the services of a third party to design or manufacture the Permitted Device(s). It also contains optional language at the end of the clause which allows the licensee the right to manufacture a device containing the SIP alone (a "stand-alone" device) if the parties agree to such use.

Most agree this is adequate for the basic "hard IP" scenario the license agreement was intended to cover. Some suggest additional language that would allow for the SIP transfer to an intermediate third party, which would take the IP and integrate it into the Permitted Device for the licensee. This scenario is intended to cover a situation where there may be some doubt as to the licensee's ability to adequately safeguard the SIP.

### 1.2 Copy

The VCX Model License provision permits the licensee to make a "reasonable" number of copies of the SIP to fulfill the purposes of the agreement, provided all such copies preserve the proprietary rights legends (i.e., copyright, trademark or patent notices) that are on the original.

This provision is generally deemed adequate for the scenario described. Several noted that the copy provisions did not directly address the archiving or back-up of the SIP and that additional language may be needed to address specific permission to back-up or archive SIP.

### 1.3 Modify

The original VCX Model License Agreement permitted the modification of the SIP but only in the context of designing and/or manufacturing the Permitted Devices. If there were any modifications, the VCX Model License Agreement provided for three basic scenarios for ownership of the intellectual property in the SIP: the licensee would own modifications; the licensee would own the modifications but would grant a license to such modifications to the licensor; and joint ownership of the modifications.

The reviewers spent considerable time discussing the modification question. In general, the Reviewers felt that for the simple fact pattern, rights to modify would not generally be applicable for two reasons. First, if a licensee needs to modify hard SIP because it does not perform as desired, then the licensor would likely agree to make such a change itself in the context of support. Second, in the case of soft IP where some

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<sup>1</sup> The term "Permitted Device" means the device which the licensee wishes to create containing the licensed SIP.

modification is needed, this “modification” is done at a layer of abstraction above the IP itself and is thus not generally considered a “modification” to the IP.

Some reviewers noted that they believed there should be an option allowing the licensee to modify the SIP, especially in situations where there might be a need to urgently correct a defect or nonconformity in the SIP.

One aspect not considered by the reviewers was the question of modifications where the SIP is meant to be modified as part of the configuration process. No comments were received from Configurable IP companies.

Section 4.4 of the *Handbook* is a useful counterpoint to the discussions raised in this section of the white paper. As noted, the reviewers dismissed the question of modifications and related questions of ownership of modifications, etc. as inappropriate to the scenario raised. However, the *Handbook* provides more detail about these questions and should be read to provide a more robust context for this issue.

#### **1.4 Distribute**

The original VCX Model License Agreement allowed the licensee to market and distribute the Permitted Devices in any manner the licensee sees fit, provided that licensee pays the agreed upon license fees. Reviewers raised no significant comments on this particular section.

#### **1.5 Sublicense**

The original VCX Model License Agreement permitted sublicensing as part of the “Use” section. That is, the licensee would be permitted to sublicense the rights but only in the context of allowing a third-party design house or manufacturer to design or manufacture the Permitted Devices. There was also a separate section which permitted an optional right of further sublicense. In general, the reviewers felt that this was too broad: the specific design/manufacturing sublicense rights in the “Use” section should be moved to this section and the optional right of further sublicense should be deleted.

One consideration raised suggested that the optional right of sublicense should be retained where the licensee wishes to sublicense the entire design (i.e., the entire Permitted Device in RTL/GDSII) to a third party and allow that third party to incorporate the Permitted Device into another device. Although clearly an unusual situation, this particular “corner case” was outside the scope of the fact pattern the VCX Model License Agreement was intended to cover, but may warrant focus for anyone interested in this as an option.

#### **1.6 Limitations on Scope**

The original VCX Model License Agreement contained a provision at the end of the “Scope of License” section which stated that the scope of the license granted in the preceding paragraphs was the entire license granted by the licensor; no other rights would be implied or inferred. The reviewers had no significant comments on this section.

Although not discussed in great detail by the reviewers, Section 4.5 of the *Handbook* once again provides some useful context and some specific business model considerations which may affect the wording of this clause.

#### **1.7 At Least One Other Viewpoint**

One set of comments received outside of the formal review process took a slightly different approach to the Scope of License section of the MLA. They suggested that three different Scope of License provisions might be useful: one where only “hardened” SIP is to be transferred to the licensee; a different provision where the licensee and/or licensee’s jurisdiction can provide adequate technical and legal protections for the SIP;

and a third where the licensee and/or the licensee's jurisdiction cannot provide adequate technical and legal protections for the SIP.

Where the licensee cannot provide adequate protection for the SIP, the reviewers suggested that the agreement allow for the interjection of a trusted third party who would be responsible for ensuring that the SIP was adequately protected.

## **2 Payment**

The Payment provisions of the original VCX Model License Agreement were subject to a great deal of discussion. The original VCX MLA had been predicated on an up-front license fee and contained some optional royalty language. This was based on an early consensus among VCX participants that up-front license fees would be the dominant fee model.

Most of the reviewers agreed that license fee models are currently "all over the map." It was generally agreed that most transactions contain some combination of an up-front fee and a royalty. Many of the reviewers felt that the exact mix of license fees and up-front payments tended to depend on the type of IP being licensed. Where the IP was of a simpler or more proven nature, the reviewers felt that the licensor might be in a better position to ask for a larger up-front fee and a running royalty.

There was a general consensus among the reviewers that there is no universally accepted metric against which to calculate royalty payments. During the course of the discussions, the reviewers mentioned a number of metrics commonly used such as average selling price (ASP) of the final design/device; the value of the IP to the design and the percent of die size occupied by the IP. The reviewers were in general agreement that there are a broad range of options and discussions among industry participants (while perhaps never yielding any consensus) would provide some clarity and consistent terminology.

Some of the other payment-related issues discussed by the reviewers included:

### **2.1 Revenue Recognition**

The working group all acknowledged that the accounting rules relating to revenue recognition are a significant concern in most SIP license agreements. There was general recognition among the reviewers that these rules can be extremely complex and in most cases determine the precise language that is in most of the payment provisions in an IP license.

### **2.2 Audits and Payment**

Most of the reviewers agreed that audit provisions are necessary where a license agreement has royalties payable as products are manufactured. There was considerable discussion about how these audit provisions would actually work, especially where the data to be audited was in the hands of a third party such as a foundry. There was also some discussion about whether audit provisions were necessary, not only to determine whether the royalties reported were in fact correct, but also to determine whether there was any use of the SIP which might constitute IP infringement. Discussion also centered on exactly how frequently the audits might be conducted, under what circumstances and who specifically might be permitted to conduct the audit.

### **2.3 Taxes**

Most of the reviewers agreed that generally speaking, SIP licenses place the burden of most taxes on the licensee. There was considerable discussion of withholding taxes imposed by countries such as Japan and Korea, but there was no general agreement on how licensors tend to handle such issues.

## 2.4 Duration of Royalty Obligations

One suggestion was to add a clause which limited the duration of the obligation to pay royalties and report to the licensor to the duration of any patents underlying the SIP. Once the underlying patents expire, then the licensee would be free to manufacture devices containing the SIP without any further obligation to report or pay royalties to the licensor.

It was assumed that the obligation to pay royalties would continue so long as the licensee was manufacturing the Permitted Devices and that the expiration or invalidity of the underlying patents wouldn't affect the licensee's obligation to pay royalties.

Section 4.7 of the *Handbook* provides more useful context for Payment provisions in an SIP license.

## 3 WARRANTY

The reviewers spent considerable time discussing warranty provisions in SIP licenses. It was generally agreed that the structure of the Warranty provision contained in Clause 5 of the VCX Model License Agreement was generally consistent with similar warranty provisions in other SIP licenses.

None of the reviewers significantly disagreed with the VCX Model License Agreement's basic structure of (1) a description of the warranty; and (2) a list of remedies for failure to meet the warranty specified; and (3) exclusions and limitations to the warranty.

The majority of the discussion among the reviewers centered on two topics: (1) duration of the warranty and (2) remedies for failure to meet the warranty specifications.

The general sense of the reviewers was that warranty duration tends to vary greatly and the following factors tend to have an influence on duration:

- Whether or not the IP has been proven in silicon – if the IP has been used by another customer, then the warranty might not be as long as it would tend to be where the IP hadn't been proven in silicon.
- Whether the IP is hard or soft.
- The relative age and complexity of the IP – where the IP has been around for a while and is fairly well understood, then the warranty tends to be shorter than in a situation where the IP is new or is very complex.
- Acceptance criteria – if there is detailed acceptance criteria for the IP, then the warranty (which would theoretically commence from the acceptance date) might tend to be shorter.
- Standards certified – if the IP has been certified as conforming to a standard (e.g., PCI, USB or IEEE 1394), then sometimes the warranty period may be shorter.

There was some discussion of when the warranty should begin. The VCX Model License Agreements generally presumed that the warranty should begin from the delivery of the IP to the licensee. Several reviewers challenged this notion and suggested that the warranty period should begin from the date the licensee ships its product to its end users.

On the question of remedies, there was a great deal of spirited debate, but few conclusions could be drawn from the debate. Several of the reviewers who could generally be classified as IP integrators did not like the provision in the VCX Model License Agreement which allowed the licensor to terminate the agreement if the licensor wasn't able to fix or replace the IP. Nearly all of the reviewers felt that the obligations on the licensor to repair or replace the SIP if it did not perform in accordance with the warranty specifications were correct and reflected the proper balance.

One area on which there wasn't any real substantive disagreement was the issue of licensor/licensee communication during a warranty dispute. Under the language of the VCX Model License Agreement, once the licensor is made aware that there is a non-conformity, the licensor must then respond to the licensee within a defined period stating either that the licensor can't replicate the error or that the licensor has replicated the error and has a plan to fix the problem. Further, the licensor must give the licensee weekly progress reports while the licensor is attempting to remedy the problem. These requirements should ensure that the lines of communication remain open during the process. Although some reviewers commented that these provisions might be burdensome in certain circumstances, no one significantly disagreed with the general principle behind the language.

Sections 3.3.1 and 4.9 of the *Handbook* provide some additional context for Warranty issues in an SIP license.

#### 4 LIMITATION OF LIABILITY

As with the discussions around the Warranty provision, this issue generated significant emotion from both the SIP buyers and the SIP sellers. There was considerable discussion around numerous fact patterns, especially those where the licensor may have provided a product that does not meet the licensor's needs no matter how much support the licensor may provide. Some reviewers discussed experiences where a licensor had provided an item that simply was not fit for purpose. In such a scenario, a query emerged as to whether a limitation of liability is appropriate. The concern is that a limitation of liability might not be a disincentive to unethical behavior.

Others pointed out that the decision to license SIP represents a balance of the risk that the IP doesn't work as desired with the reduced cost of licensing SIP (as opposed to developing it internally). This suggested that the limitation of liability discussion must relate back to the licensor's initial decision to license the SIP component instead of developing it internally. In other words, by licensing SIP, the licensee had made a conscious decision to accept more risk in return for the cost benefit of licensing something that the company would not have to develop from first principles.

It was generally agreed that the limitation of liability is a balancing of risk and cost and is specific to each transaction. The fact that there were no common viewpoints is not surprising given that this area is so idiosyncratic and fact-driven.

Another area of considerably heated discussion was the question of whether the limitation of liability should apply to the intellectual property infringement indemnity. Reviewers who commented on this issue tended to be from the buyer side. There was a general view from these reviewers that the limitation of liability should exclude instances of IP infringement; otherwise they felt that there was no real incentive for the IP seller to be diligent in his efforts to ensure that the IP did not infringe a third party's rights.

Finally, there were several principles from the VCX Model License Agreement on which there was little or no disagreement:

- The licensee's liability to the licensor should not be limited in certain circumstances. Although the parties should determine on a case by case basis whether such a limit is appropriate, the reviewers felt

that in general the licensee's liability should not be limited for actions such as breach of confidentiality or misappropriation of IP, since having unlimited liability acts as a significant deterrent to licensee engaging in such conduct.

- The actual limit of liability normally bears some relation to fees paid under the license. Although the precise formula in each case may be unique, most of the Reviewers agreed that there's usually some link to license fees.
- Most limitation of liability provisions will contain some exclusions, such as breach of confidentiality, misappropriation of IP or use of the SIP in activities for which it was not designed, such as aircraft navigation, online control systems and other uses which carry a significant risk of injury or death.

Section 4.11 of the *Handbook* again provides some important context for readers who might be unfamiliar with, or confused by, some of the issues raised in the preceding section.

## 5 INDEMNITY

As with the Warranty and Limitation of Liability sections, the reviewers spent considerable time discussing these provisions. While the exchanges were extremely interesting, some questioned whether there should be an indemnity provision at all in the license. While this seemed counter-intuitive to many of the reviewers, one example contended that the decision to license IP represents a choice of convenience and reduced cost. In such a situation, it was argued that the licensee was making a conscious decision to accept more risk in return for reduced price and increased convenience, concluding therefore that an indemnity provision wasn't needed and that it represented a distortion of the true market balance reflected in the decision to license SIP.

The majority of the reviewers accepted that indemnity obligations are common in many SIP licenses. In discussing the makeup of indemnity provisions in an SIP license, the reviewers considered the following discussion topics:

**5.1 Precise Nature of Indemnity Obligations:** the reviewers generally agreed that most Indemnity provisions in SIP licenses contain obligations to "defend," "indemnify" and "hold harmless" the licensee. They also agreed that the use of these three terms tended to vary among licenses and that in some cases they may be recited in a mantra-like fashion, even though the law of the agreement does not necessarily recognize the concept.

**5.2 Rights Covered by the Indemnity:** as with many other areas of this paper, there was some fairly heated debate over which rights (patents, copyrights, trade secrets, etc.) would normally be covered by such an indemnity obligation. While few reviewers excluded copyrights and trade secrets, reviewers were split over the question of patents, with a number of the SIP provider representatives arguing forcefully that patent indemnities shouldn't be included. Some (though admittedly not all) of the SIP buyer community represented argued that patent indemnities should be included since the licensor was in the best position to defend such an action.

**5.3 Licensee's Obligations:** the VCX Model License Agreement contained some fairly detailed obligations on the Licensee in the event of such an action such as reporting it to the licensor, assisting in the defense of the claim and not making any admission of liability without the consent of the licensor. None of the reviewers had any substantive comments on this provision.

**5.4 Remedies:** the VCX Model License Agreement contained three sequential remedies for allegations of IP infringement:

- Modify the SIP so that it no longer infringes provided that there is no compromise in functionality; or

- Replace the infringing SIP with an equivalent item; or
- Procure a license to allow the licensee to continue using the SIP.

The reviewers generally agreed that these remedies were appropriate but strongly disagreed about whether there should be an additional remedy if none of these options were available or were commercially feasible. Many of the reviewers felt that the licensor should be obliged to refund the license fees paid if all three remedies failed; these reviewers tended to represent the licensee side. Those reviewers from the licensor community, however, were of the very vocal opinion that this remedy was not appropriate. Although the precise rationales differed, most reasons tended to center on the ability of the licensor to recognize revenue for a transaction where there was such a refund obligation.

**5.5 Exclusions:** The VCX Model License Agreements contained a list of conduct by the licensee which would be excluded from the indemnity obligations of the licensee. There was general agreement among those reviewers who felt that there should even be an indemnity obligation in such an agreement that the VCX language was sensible.

Section 4.10 of the *Handbook* provides a more generic framework for the consideration of the issues raised in (A)-(E) above. It is advisable for readers to consider this section of the *Handbook* in some detail to get a more general perspective on the issue. For readers who are not familiar with the issues or who might be confused by the preceding section, Section 4.10 of the *Handbook* is an important resource.

## 6 GOVERNING LAW

One of the final issues that the reviewers spent some time on was the question of what law should govern an SIP license agreement. Although there was no general consensus, several reviewers felt that in an SIP license agreement, the governing law is generally determined by the licensor, as it is the licensor's intellectual property which is the subject of the transaction. It was acknowledged that in some cases – especially where the bargaining power of the parties is skewed in favor of the licensee – the governing law may be determined by the licensee.

Finally, several reviewers commented that in some cases there might be a “split” provision; that is, the majority of the terms would be governed by a particular law, but the IP validity and enforcement portions would be governed by a different set of laws (usually determined by the licensor).

Section 4.15 of the *Handbook* provides more context for this issue.

## 7 CONCLUSION

As noted in the introduction to this white paper, negotiating and executing a license agreement for SIP remains one of the most difficult and time-consuming portions of any SIP transaction. However, this review process reveals that there is some positive news. Although the licensor and licensee camps remain far apart on some issues such as Indemnities and Warranties, there is a surprising commonality of issues. Both sides do seem to recognize many of the same issues and are surprisingly articulate when attempting to describe the opposite side's position on a particular issue.

It is important for all parties concerned that the dialogue on licensing and business model issues continues to develop. As issues are discussed and documented, the body of knowledge on SIP licensing and business models will continue to develop and this is to the benefit of the entire industry.



## *THE CURRENT STATE OF SEMICONDUCTOR INTELLECTUAL PROPERTY (SIP) LICENSING*

Given the variety of companies involved in this development process – from fabless to IDMs to foundries to EDA to IP developers, the working group felt the MLAs developed by the VCX were the most comprehensive and represented the greatest amount of collective reasoning. As such, they used this work as the basis for this discussion and analysis of IP licensing issues and concerns that companies need to be aware of.

This is by no means a complete analysis, but it does represent some concerns from the IP integrator and supply chain that should be given consideration when entering into agreements.

### **ABOUT THE AUTHOR**

Nick Popper, Esq. is an Attorney with over ten years experience in intellectual property matters. He served as the Reporter for the FSA's Model License Agreement (MLA) Working Group and the Chairman of the FSA's MLA Review Committee. He was Senior Legal Counsel to the Virtual Component Exchange (VCX) from 1999 to 2004 where he was responsible for the development of the VCX Model License Agreements. Nick is currently a consultant specializing in Semiconductor IP and software licensing. He can be reached at [nick.popper@gmail.com](mailto:nick.popper@gmail.com) or by telephone at +44 (0)2890 286 006.